

TREES IN CANBERRA



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TREES IN CANBERRA

BY

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FRONT ENDPAPER.

Eucalyptus maculosa (White Gum) in Dampier Crescent, Forrest. One of the few native species which has been used extensively in ornamental planting: These are about 35 years old.

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Mr. Darcy Vest kindly supplied the photograph taken in 1927 and reproduced at Plate 22.

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INTRODUCTION

WHEN plans were first made for the construction of the national capital at Canberra, tree planting was accepted as one of the necessities of the design. In 1910, the first preparations were made to raise stock for this planting and, up to the present, some 3,000,000 trees and shrubs have been planted in the city area. All the planting stock used in Canberra has been raised by the Parks and Gardens Section of the Department of the Interior at Yarralumla Nursery, where the annual out-turn for the last several years has been about 100,000 woody plants.

The plantings of 1915 were the first of any size carried out as part of city development. Thus the oldest planted trees directly associated with the development of Canberra are now a little over 45 years old. This is long enough to tell, among those species which were established in the first plantations, what their behaviour is like under local conditions and which are well suited to Canberra for landscape planting.

A wide and excellent range was selected for use in Canberra from all the material available in Australia at the time, and a balance was struck between exotic species introduced from overseas countries and native Australian species. Since then there have been more introductions but there still remains much scope for trials with species from other countries. There is also room for improvement of the native Australian vegetation, which has been largely at a disadvantage in comparison with introduced plants because there has been so little improvement of it for ornamental tree planting.

The growth of trees in Canberra has been remarkable because so much of the area now in the city was originally treeless. Forty-five years of development have made big changes in the appearance of Canberra and it is now not easy to realize what the natural condition was, unless one turns to memory or record.

NATURAL VEGETATION

MUCH of what is now the centre of the city was naturally without trees. It formed an area very suitable for sheep grazing, which commenced with the introduction of sheep in the 1820's. Yet there are many native trees to be seen in Canberra. These are principally Eucalyptus and they occupy most of the land above 2,000 feet elevation. Below 2,000 feet elevation, i.e. between 1,800 and 2,000 feet in the city area, treeless grassland vegetation was found at the time of settlement.

It is the practice in describing natural vegetation to use simple descriptive terms for the major types, and in the Canberra area there are three of these: grassland, woodland and forest. The latter two are those vegetation types in which Eucalyptus provides the most prominent species.

The grassland vegetation poses some interesting botanical problems. It is limited roughly by the 2,000-foot contour, occupying the lower levels of the broad valley in which Canberra is situated. There is little doubt that the grassland is the result of

certain micro-climatic peculiarities in the valley bottom, and it seems clear that soil plays little part in its delimitation. On the Southern Tablelands this condition is repeated frequently between Canberra and Kosciusko, and it is thought to result from the formation of frost hollows.

Frost hollow effects are well known overseas in places generally rather colder than Australia. They occur when the general climate is sufficiently cold in areas with a topography like that of Canberra. Here cold air drains slowly in the evenings when it is clear and still onto the lowest ground and remains immobile there. Thus the minimum overnight temperature in the zone in which this cold air pool is lying may be much lower than that above this pool. The boundary between the cold and warm air is both sharper than normal and the reverse of the normal temperature trend, since temperature ordinarily decreases with altitude. This is called temperature inversion, a condition well known to orchardists, and at times in fruit-growing areas large fans have been used to circulate the air to avoid the consequent frost. The limits of the cold air can be seen in Canberra in autumn and spring, when smoke from chimneys rises only to 200 feet or so above the ground in most suburbs and then moves horizontally as it reaches the layer of warm air which is resting above the colder air below.

This micro-climatic peculiarity is a very important one for plant growth in Canberra, especially as it is expressed in the colder half of the year. Differences on either side of the inversion layer of as much as 12° F. have been recorded between two stations separated by only about 100 feet with 5° F. of frost at the lower station and 7° F. above freezing point at the other. This partly explains why plants in those suburbs of Canberra on rising ground often bloom earlier than those at lower elevations. It also explains why Kurrajongs, which were native in the Canberra area on hills such as Capital Hill or Mount Mugga, when planted in streets in Canberra, such as Limestone Avenue, are often cut severely by frost in comparison with the natural ones. Cold air movement also affects species which, for growth in Canberra, are near their climatic border line. For example, Chinese Elm suffers severely from winter frosts in some years and unfavourable places cause it damage especially when it is young.

Settlement has made great changes in the grassland vegetation, mainly because of close sheep grazing, and since so much grassland is now vanishing into suburban areas it is worth recording that the vegetation nowadays is generally a sward of somewhat tussocky grasses, either Wallaby Grass (*Danthonia*) or Spear Grass (*Stipa*), with places carrying Snow Grass (*Poa caespitosa*) where the soils are of somewhat heavier texture. At present, in areas excluded for some time from grazing (roadsides, cemeteries and the like), Kangaroo Grass (*Themeda australis*) becomes common, and if grazing is excluded for a sufficiently long time it may become the most important species in the sward. This supports the conclusion that the great bulk of the Canberra plains was before the introduction of sheep, probably a sward of Kangaroo Grass. No doubt the grazing intensity under wild animals was lower than that of sheep grazing inside fenced areas and the marsupials are soft-footed and eat less closely than sheep. It is undoubtedly the sheep which have reduced the grassland to its present condition. This makes understandable the comment by the first settlers that it was possible to tie the heads of the grass on the plains across a horse's withers. While this may be a little exaggerated,

it certainly could not be applied to the Spear Grass-Wallaby Grass pasture which now predominates on the plains area, but it could be said reasonably of Kangaroo Grass pasture in some years.

Much of the original grassland which covered the Canberra city site cannot now be seen or its limits appreciated because it is either built on or planted with trees, but there are sections of it still displayed on either side of the Federal Highway in the vicinity of the Drive-In Theatre, at the Aerodrome and on the Cooma Road on either side of Jerrobomberra Avenue, or again along the Cotter Road before reaching Mount Stromlo. The grassland was distinguished, apart from the perennial grass species which are the most prominent feature of the sward, by a number of other accompanying plants. These were both annual and perennial, and altogether made a plant community with some diversity of species. Some of the associated species are sufficiently frequent in the grassland area and at the same time sufficiently uncommon in areas occupied by other vegetation types, to be said to be characteristic of the grassland. Amongst the most prominent of these is Blue Devil (*Eryngium rostratum*) and perhaps to a lesser extent *Helipterum australe* and *Convolvulus erubescens*.

Eucalyptus woodland, or *Savannah Woodland*, as it is often called, is a type of vegetation which is widespread in Australia and was the natural plant community in very large areas of the country at present used for grazing or wheat farming. In Canberra this type of vegetation is absent from the frost hollows. There are two main types of *Savannah Woodland*, one consisting either of Candlebark (*Eucalyptus rubida*)—such as occurred on substantial sections of O'Connor between Condamine Street and Macarthur Avenue in the vicinity of Sullivan's Creek—and Snow Gum (*Eucalyptus pauciflora*), which in many places fringes the Canberra plains as a narrow strip of 100 yards or so adjoining the grassland. Remnants of stands of this latter species can still be seen in the vicinity of the War Memorial, at the foot of Mt. Majura, in La Perouse Street in the vicinity of Caley Crescent, at Deakin near Strickland Crescent and on Hopetoun Circuit just north of Adelaide Avenue. Candlebark is best seen just south of the end of Jerrabomberra Avenue on its western side.

The main characteristics of *Savannah Woodland* are that the trees stand rather widely spaced, with a park-like effect, and there is grassy undergrowth containing many of the species found in the grassland but now altered largely in the same way that the grassland itself has been changed. The trees of the first type of *Savannah Woodland* mentioned above, Candlebark and Snow Gum, are relatively short-lived as Eucalypts go, and it is now difficult to find in the area a sound, naturally growing tree. Continued sheep grazing prevents regeneration, and as the existing trees become older as time goes by and as they progressively lose vigour, particularly after the stress of excessively wet or dry seasons, fire or periodic insect attack, they die in increasing numbers without younger ones coming on to replace them. Approaching death may show as die-back of branches or in stem decay and if they do not die from lack of vitality they may fail by wind-throw. Both these species are apparently fully mature at 100 years and seldom pass 150 years of age. Both also have been planted to some extent in the city area. They are very decorative trees, although well-judged lopping is necessary from time to time, especially of Candlebark.

The remainder of the *Savannah Woodland* vegetation is made up principally of four species of trees: Yellow Box (*Eucalyptus melliodora*), Red Gum (*E. Blakelyi*), Apple Box (*E. Bridgesiana*) and more rarely Red Box (*E. polyanthemos*). *E. Blakelyi* is closely related to the gums which in Queensland are called Blue Gum, although the common name for this group of species in the southern part of Australia is Red Gum. It is for reasons such as this that the scientific name for plants must be employed if there is to be any certainty which plant is meant. Yellow Box is one of the finest natural trees of the area, but also one of the most exacting in the conditions necessary for its growth. Where attempts have been made in gardens to preserve fine trees of Yellow Box, the building up of soil and subsequent watering has invariably led to death within a few years. It is clear that Yellow Box will not tolerate such disturbance. Many of the trees are very old, undoubtedly over 250 years, and they give promise of continuing to live for some time. In common with all species of the woodland areas, there has been little replacement by regeneration of Yellow Box, so that ultimately those trees, fine as many of them may now appear, will too decline and die and none will be left to replace them.

Red Gum is rather similar in its behaviour, and is with Yellow Box one of the most common trees occurring naturally in and around the city. The bark markings of this species are very attractive and it is likewise a very long-lived tree. It has the added advantage that it does not suffer from the disturbance of being incorporated in gardens, but on the other hand it suffers much more seriously from lerp insect damage and periodically, when the natural parasites of the lerp become scarce, the trees are disfigured. In general they recover, but as the trees become older this disfiguration may be followed by substantial damage and the trees, thus weakened in vigour, perhaps killed. The grassy undergrowth with this group of species is similar to that with the Candlebark-Snow Gum type of *Savannah Woodland*.

The remaining principal type of vegetation is *Dry Sclerophyll Forest*, a distinctively Australian vegetation type which is displayed to advantage on Black Mountain. In the Canberra area this community develops only in the soil of low fertility with which it is found associated. It is at the best a depauperate forest, but nevertheless the arrangement of its plants and their appearance are quite different from that of the woodlands. The trees stand closer together, have smaller crowns and longer boles in relation to crown size than the woodland trees. The undergrowth is quite different and consists of at least two layers of the shrubby, hard-leaved plants which are so characteristically Australian. They are known as sclerophyllous plants because of their hard, tough leaves. The principal trees which go to make up the *Dry Sclerophyll Forest* are Red Stringybark (*E. macrorrhyncha*), White Gum (*E. maculosa*), (or Red Spotted Gum as it is sometimes called), Scribbly Gum (*E. Rossii*), so known because of the scribble-like marks made by a Lepidopterous insect on its smooth trunk, and Broad-leaved Peppermint (*E. dives*). In using the name Red Spotted Gum care should be taken to avoid confusion with Spotted Gum, a quite different tree growing on the coast of New South Wales with the rather similar but distinct botanical name of *E. maculata*. The principal genera to which species of the undergrowth in this community belong are *Acacia*, *Grevillea*, *Hakea*, *Leptospermum*, *Leucopogon*, *Pultenaea*, *Dillwynia* and *Phyllanthus*. These are very distinctive Australian groups and while their development in diversity, size and interest in Canberra

is poor compared with the display in areas such as those underlain by the Hawkesbury sandstone near Sydney or the sand plains near Perth, they are of considerable interest and worth study in spring by those interested in native Australian plants. This kind of vegetation is difficult to convert to improved pasture; and in Canberra, as over the Southern Tablelands of New South Wales in general, the patches of timber left during ringbarking operations are largely of this type. Probably because grazing is very light in this type of vegetation there has been much more effective regeneration in the past 100 years than in Woodland, so that the loss of trees due to old age is of minor consequence, younger trees replacing them. On the other hand, such vegetation is severely damaged by continued burning and if fires are sufficiently frequent it may be reduced to a shrubby tangle as is beginning to happen on parts of Mt. Ainslie. This scrub lacks the beauty of the natural forest. Two species from the *Dry Sclerophyll Forest*, namely White Gum and Red Box, have been successfully used as ornamental trees, and White Gum is one of the most striking and beautiful trees of all in Canberra.

EXOTIC VEGETATION

THE trees which are used at present and considered best in towns and cities throughout the world are seldom undeveloped wild species. A successful city tree must have special characteristics, and usually these can be conferred on it only if there has been improvement by selection and breeding, intentional or otherwise. The native vegetation is still at a disadvantage compared with introduced plants because of this. There is another reason why native vegetation cannot meet all requirements, and this is that the needs of an Australian urban community, especially in a place as cold as Canberra in winter, demand that deciduous trees shall play a prominent part in landscape arrangement. Trees which lose their leaves, which allow sunlight in winter and provide in the same spot shade in summer, are ideal for many purposes near buildings and houses. Therefore the idea sometimes expressed of using only one group of plants either native or exotic is not a practical one. Both groups have their place in landscape work in Canberra.

There were quite a number of exotic plants already in use before the Australian Capital Territory was set aside for the development of the national capital. European settlement in Australia has always been associated with tree planting, and from the earliest days different species were introduced to the country. Many of these must have been brought as living plants in pots. This is clear with the English Oak, since the acorns will remain viable only for a matter of a week or two after they fall from the tree, and none could have endured the long sea voyage from Europe other than as living plants. Of course some trees, such as False Acacia (*Robinia*), are readily handled by seed. Being a typically hard-coated leguminous seed it will keep for years and its transport would have presented no difficulty. In the rural Canberra of 1900 before the development of the national capital the principal exotic species generally in use were: English Elm (*Ulmus procera*), False Acacia (*Robinia Pseudoacacia*), Tree of Heaven (*Ailanthus altissima*), Lombardy Poplar (*Populus nigra* var. *italica*), Silver Poplar (*Populus alba*), Weeping Willow (*Salix babylonica*), Basket Willow (*Salix fragilis*), Aleppo Pine (*Pinus halepensis*), Stone Pine (*Pinus Pinea*), Monterey Pine (*Pinus radiata*) and Hawthorn (*Crateaegeus oxyacantha*).

The introduction of additional trees into Canberra has been of prime importance in the arboricultural planning of the city. The natural vegetation, for the reasons mentioned above, fails to provide species with the range of characteristics necessary for adequate city planting. Nevertheless, the introduction of exotics has not been a straightforward matter. The climate is too cold for many species which would ordinarily resist the dryness of the area, and on the other hand it is too dry and hot for many species which can easily endure the winter temperatures. These restrictions of the species which can be grown successfully have made it necessary to proceed carefully with introductions. Many tree species can be grown for a relatively short time, but when put to the test by seasons in which there are extreme climatic conditions, they may fail. The use of unsuitable species can result in costly losses. It is also clear, because trees are slow growing, that the work of introduction must be spread over many years before final conclusions can be drawn. Work begun in 1911 and ably pursued by the late T. C. G. Weston until 1926 has produced clear evidence of the performance of the group of species available to him at that time.

The intensity of arboricultural work has been a good deal greater in the cool temperate parts of the Northern Hemisphere than in the warmer and drier regions of the globe. There remains a large, relatively undeveloped field for testing species from areas with a climate at least biologically more like Canberra's than that from which many species now in use have been derived. It is anticipated that valuable introductions will be made still from the south-western part of the United States of America—principally California and Arizona and adjacent Mexico; from the Mediterranean region, especially North Africa; from Asia Minor; from the southern part of the U.S.S.R., especially the Caucasus and either side of the Caspian Sea; from parts of China and from Chile and Argentina.

In spite of the climatic and soil limitations many people have found that one of the striking things about Canberra's trees is their variety, and many are growing under climatic conditions which, in many respects, are substantially different from those of the areas in which they grow naturally. Of course, species which cannot stand the frost of an ordinary winter in Canberra are killed at once, as are species which cannot stand dry winds in summer. Nevertheless, when species are far removed from their native haunts they cannot be expected to grow as they would there, and this is shown principally by shorter life. Many become senile and finally die at earlier ages than in their natural habitats. This is very well illustrated with Monterey Pine. In its natural habitat on the Monterey Peninsula south of San Francisco in California, this tree often exceeds 150 years of age. Under the hot and dry conditions of Canberra, removed from the sea fogs of Monterey, the tree seldom looks thrifty after about 40 to 50 years of age. However, on the Southern Tablelands, if specimens are examined from all the areas in which it is planted so widely, it is found that where there is a rainfall higher than the 23 inches per annum of Canberra it lasts for a considerably longer time, and healthy trees of 80 years of age can be found. This means that a great many trees growing in Canberra which in their indigenous habitat would live to be well over 100 years of age are not likely to go far beyond 70 in many of the areas where they are planted. This is a sufficiently long time to allow their effective use, although for some landscape effects and in some areas a longer life is desired, and must be taken into account in planning.

Trees differ from flowers and crop plants in that their nutritional requirements for healthy growth are generally lower. It is not surprising that although the soils of Canberra in common with those of most of Australia are not very fertile, many tree species will thrive with little additional fertiliser. In general Canberra soils are inclined to be shallow, and usually they are quite acid, especially in the surface layers. They are broadly classified as grey or brown podsols. There is practically no limestone in the city area or the immediate surrounds of Canberra, and where this does occur the soil lying on it is generally a *terra rossa* or related type which in any case is slightly acid and non-calcareous. The fertile soils derived from basalt in places on the Tablelands where they are used for potato growing, as at Crookwell, or orcharding as at Batlow, are missing from Canberra.

The climate of Canberra is rather severe for trees chiefly because it is too dry. The average rainfall is 23 inches per annum and according to the records of means it is distributed evenly throughout the year, but in any one season there is usually a peak of either summer or winter rain. The winter rain is usually much more effective, so far as plants are concerned, than the summer rain. Extremes of less than 10 inches in 12 months have been recorded, and in the very wet year of 1956 the rainfall was as high as nearly 40 inches. When an area which is normally rather dry receives such a heavy rainfall considerable troubles are caused by waterlogging, and in Canberra in that year quite a lot of well-established ornamental trees died with "wet feet". *Celtis australis* was especially susceptible, but many others such as Birch were also affected in different parts of the city.

Winter temperatures are critical for many species, and Canberra is much colder than most other towns in Australia. Temperatures of 15° F. in the screen have been recorded, and it has been a little less than 9° F. on the grass. Nevertheless, under such conditions the days are almost always sunny, so that the daytime temperature rises substantially and continuously frozen ground never occurs in the sense of the Northern Hemisphere, although occasionally frost lies all day long on the surface in shaded areas. Snow also falls now and then, and once in every ten years or so it may lie on the ground for a day, but it is seldom heavy enough to cause much branch-breaking. This is just as well, since many of the species are not at all resistant to snow loading. Wind in some seasons is quite severe, and there is a constant need to prune and lop trees to make them as stable as possible so that they will withstand heavier wind when it comes. The important wind from the point of view of breakage and uprooting is from the west-nor'west, although occasionally some damage results from a stiff southerly. There is seldom damage by wind from other directions. Apart from this, the adverse effect of wind is its drying effect, and good garden planning in Canberra will always incorporate strong protection from the west and north-west sides, and to a lesser extent from the south.

Unless one has lived in Canberra or is perhaps especially interested in plants, it may be somewhat astonishing, in view of the substantial number of species planted, to find some well-known plants which are widely used in other parts of Australia missing from the Canberra scene. Among the most outstanding of these is *Jacaranda mimosifolia*, for which Grafton is so well known. This will not grow in Canberra because it is first damaged and then killed by winter frosts. The same is true of the

Western Australian Red-flowering Gum (*Eucalyptus ficifolia*), which is an outstanding specimen in several of the coastal cities, particularly Adelaide and Melbourne. It will not stand the cold weather either, and there are but one or two scraggy specimens in very sheltered positions surviving in the city at present. The cold weather excludes species of tropical and sub-tropical areas, and also a number of native Australian species which are quite widely planted in Australian towns with warmer climates. The best of these are Brush Box (*Tristania conferta*), Illawarra Flame Tree (*Brachychiton acerifolium*), Sugar Gum (*Eucalyptus cladocalyx*), Moreton Bay Fig (*Ficus macrophylla*) and other species of Fig.

Other well-known exotic species which cannot be grown for the same reason are Indian Coral Tree (*Erythrina indica*), Camphor Laurel (*Cinnamomum camphora*) and the South African *Virgilia capensis*.

The failure of trees because of cold weather is more spectacular than failure through dryness caused by high winds and low humidity. Nevertheless, the effect is just as potent, although specimens affected in this way may languish for a few years before they die. Some of the best shade trees of the cool temperate zone of the Northern Hemisphere cannot be grown well for this reason. The most noteworthy of these are Beech (*Fagus sylvatica*), Tulip Tree (*Liriodendron tulipifera*), Sugar Maple (*Acer saccharum*), Linden (*Tilia* spp.), and a wide range of conifers, such as Douglas Fir (*Pseudotsuga taxifolia*), most spruces and firs, Port Orford Cedar (*Chamaecyparis Lawsoniana*), Western Red Cedar (*Thuja plicata*), Larch (*Larix*), Hemlock (*Tsuga*), and Sugar Pine (*Pinus Lambertiana*).

Some of these species may be found in gardens and, if given a particularly favorable spot, may grow for a number of years, but they cannot be used in general landscape arrangements because they are not sufficiently reliable.

PLAN OF DESCRIPTION

IN the following pages most of the species which can be seen in Canberra are described. The order of arrangement of major groups is broadly that of Engler and Prantl's "Die Natürlichen Pflanzenfamilien" with Rendle's modifications since this is accepted botanical practice and has advantages for the botanist. The species within each genus (and genera within the Conifers) are arranged alphabetically. The index allows easy location of a particular genus and species by the non-botanist. The species names are as far as possible as given in Rehder's "Manual of Cultivated Trees and Shrubs", second edition, 1958.

The scheme of description which is generally followed is to mention the principal feature by which the species is separated from its nearest relatives, then the area where it is found naturally, special features relating to use, where it is planted and growth characteristics in Canberra.

Finally a brief note is given on the method of propagation usually used, its flowering time and the location of a specimen in Canberra. The treatment is not exhaustive but it covers most of the trees of Canberra.

DESCRIPTION OF SPECIES

CONIFERS

ABIES Mill.

FIR

A genus with species widely distributed in the northern hemisphere, and forming an important group of forest trees. The majority of species does not succeed in Canberra unless tended with great care.

Abies concolor (Gord.) Engelm.

Colorado Fir

The only true Fir which gives promise of successful growth.

Native to California, Utah, Arizona, Colorado, often on dry and hard sites at elevations where it makes a fair-sized tree.

Fairly slow growth, but healthy and apparently able to endure the climate providing the soil is well drained. The wet winter of 1956 caused the death of several specimens.

Has reached 40 feet with a 15 feet crown spread.

A handsome and attractive tree, erect, glaucous, well-formed, rather narrow-crowned and of value as a specimen tree.

Propagated by seed. Fruits occasionally on trees twenty years old about every two years. Seed will remain viable no more than a few months. Cones break up on the tree after they are ripe.

Pollen shed November.

There are a few specimens, the largest of which is in the grounds of the Hotel Acton.

ARAUCARIA Jussieu

An important genus of trees, species of which occur in South America, Oceania and Australia. The majority of species will not stand the winter temperatures of Canberra, but there are two species, one Australian and one Chilean, which survive.

The well-known Norfolk Island Pine and the Hoop Pine of Queensland are not frost hardy in Canberra.

Araucaria Bidwillii Hooker

Bunya-Bunya

Easily distinguished from the other species planted because of the more spreading leaves, and the second-order branchlets clustered at the ends of the long first-order branches.

Native to southern Queensland, especially in the Brisbane and Mary Valleys, where it makes a large tree and provides a considerable amount of good timber.

A distinctive, shapely, round-headed tree of which there are but a few specimens. Grows rather slowly.

Has reached 60 feet at Duntroon with a crown spread of 50 feet.

Of limited use as a specimen tree.

Propagated by seed. Fruits seldom in Canberra. Seed stored in the open remains viable for a very short time only.

Two trees may be seen, one at the southern end of Commonwealth Avenue and one at the western end of Kings Avenue. There are a few larger trees at Duntroon.

Araucaria araucana (Molina) K. Koch

Chile Pine

Monkey Puzzle

The more diffuse branching and more closely appressed leaves make it distinct.

An important tree in southern Chile and northern Patagonia, where it yields a considerable amount of timber.

Slow growing and so far only young specimens here, it is more cold resistant than *A. Bidwillii*.

It is more of a curiosity than of marked landscape value.

Propagation as for *A. Bidwillii*.

There is a small tree in the grounds of the Forestry School at Yarralumla.

CALLITRIS Vent.

NATIVE CYPRESS PINE

A genus confined to Australia, belonging to one of the comparatively few groups of indigenous conifers. There are several species distributed mainly in dry to arid regions, but one or two occurring on the coast.

They are distinctive trees. Some species are greatly valued because of the resistance of the timber to termites. The timber has been widely used commercially in Australia. The genus yields a sandrach resin.

Closely related to *Tetraclinis* of North Africa, and rather more distantly to *Widdringtonia* of South Africa.

Callitris Huegelii (Carr.) Franco.

Cypress Pine

White Cypress Pine

Widely known by its synonym *C. glauca* R.Br., in general it may be separated by the glaucous appearance of the foliage.

Widely distributed in the central western part of New South Wales and Queensland and extending to South Australia and Central Australia. The best development is probably in the Pilliga scrub and north to Queensland. In this area trees reach about 100 feet.

There are comparatively few specimens here, but planted it grows fairly rapidly and makes a decorative tree. There is a tendency for low branches to become vigorous and give a many-stemmed tree unless controlled, and this is liable to wind-break later in life. This observation is based on a rather limited number of examples and may be the result of seed obtained from an unsatisfactory parent. It apparently withstands the climate satisfactorily, although Canberra conditions are colder than those in its natural habitat.

Has reached 35 feet with a crown spread of 10 feet.

A shapely tree with good appearance, it has possibilities in landscape use.

Propagated only by seed, the few old specimens here do not fruit frequently.

Yarralumla Nursery has a good specimen.

Callitris Endlicheri (Parl.) Garden

Black Cypress Pine

Separated from *C. Huegelii* by the somewhat larger cones and the green, rather than glaucous appearance. It is well known by its former name *C. calcarata*.

The branching habit is more upright in the mature tree. Its natural range is partly co-extensive with *C. glauca*, but it is a much less common species in that area. It extends on rocky sites, however, a considerable distance on to the Southern Tablelands, and is indigenous on rocky slopes close to Canberra as, for example, Molonglo Gorge and the Murrumbidgee River, and reaches Cooma.

It has been planted successfully and is entirely suited to the climate. It is possible that improved forms will be obtained by judicious selection and this might well become a useful tree in the landscape. It suffers considerably when planted from several stems competing, giving a mechanically weak union at the butt which is very liable to wind-break in later life.

In its natural condition it reaches about 50 feet with a 25 feet crown spread in this locality.

Propagated by seed, it fruits fairly regularly and is raised easily. Pollen-shed early November.

Westbourne Woods.

CEDRUS Trew.

CEDAR

A striking group of evergreens extending from North Africa to the Himalayas. The number of species of true Cedar is limited to about four, but the name has been widely used as a popular designation for many species, both coniferous and broad leaved which are quite unrelated to the true cedar. The Cedar of Lebanon, which is a true Cedar, is well known.

Cedrus atlantica Manetti

Atlas Cedar

The shorter and stiffer needles (*see* Plate 1) distinguish it readily from Deodar Cedar, but the separation of *C. libani* is much less certain. The leading shoot in Atlas

Cedar is considered to be upright, whereas in *C. libani* it is drooping. The branches are said to be more horizontal in *C. libani* than in *C. atlantica*, but there are wide variations in plants raised from seed, and separation of cultivated plants is by no means clear.

A fine tree in the Atlas Mountains in Morocco, also in the Rif and extending to Algeria, it reaches more than 150 feet in height and 500 years of age. It makes a fine forest from which commercial timber is produced. It extends to dry habitats in both Morocco and Algeria, but the best development is on rather better soil with rainfall of 40 inches and more at about 4,000 feet elevation.

Extensively planted in Canberra both as a park and street tree. It is not, however, ideal for the latter purpose because of its branching habit and form.

There are some old trees, probably 80 years of age, at Duntroon and it gives promise of being long lived here. Occasional deaths do occur in trees up to twenty years old, and this may be due to an inherited weakness in some individuals. No pathogen is obvious as a cause of this trouble and it occurs irregularly, as for example in Elimatta Street, Reid. The matter has, however, not been thoroughly investigated. In many cases the tree has persisted on very dry and hard sites such as in Westbourne Woods, and in good conditions it makes reasonably fast growth.

The best trees are about 70 feet high and with a crown spread of 50 feet. It is a distinctive tree and is one of the useful coniferous evergreens in this climate.

Propagated by seed. Fruits well and generally every year, but some trees produce almost exclusively male cones, and others almost entirely female cones. Pollen shed in autumn, about April, three or four weeks before *C. Deodara*. Seed remains viable for only a month or two. Considerable variation occurs in progeny both in glaucousness of foliage and in branching habit. Some types have very vigorous upright lateral branches which is a disadvantage in cultivated trees.

Specimens are to be seen in Euree Street, Reid, and in front of the Albert Hall, and Telopea parkway.

Cedrus Deodara (Roxb.) Loud.

Deodar

The longer needles, generally about 1½ inches, make it distinct (Plate 2). It is also a more drooping and graceful tree than the other species.

It is a very large tree in the Himalaya, an important timber species and one widely planted for decoration.

It is planted quite extensively in Canberra, especially in Commonwealth and Kings Avenues. It is, however, not well suited to the climate which is apparently rather dry for it and on the poor soils it grows very slowly. It is planted as a street tree in some places, but it is even less suitable than the other Cedars because of its more drooping habit. As a lawn specimen it can be very attractive and there are some quite old trees, but it is not recommended for extensive planting in Canberra.

Propagated by seed as for *C. atlantica*. Fruits well and every year. As with *C. atlantica*, some trees are predominantly male, some predominantly female. The pollen sheds about four weeks after *C. atlantica* has finished, and commonly in May. Produces good seed crops in Canberra. The seed retains viability for but a short time.

The largest tree is at Government House—this is about 66 feet with a crown spread of 83 feet. It must be somewhat over 100 years old (*see* photograph reproduced as rear endpaper).

Cedrus Libani Loud.

Cedar of Lebanon

Very close to *C. atlantica*

Native to the Lebanon Mountains, where it is now rare, it is the Cedar of Lebanon referred to in Biblical record. There are substantial forest areas in Southern Anatolia.

There are few trees in Canberra and those reputed to be Lebanon Cedar are very similar to some forms of *C. atlantica*. More botanical investigation will be necessary before it can be confirmed. In its main characteristics it is indistinguishable from *C. atlantica*. The distinctive form developed by the mature tree, with its very marked flat top, cannot be expected to show up, of course, for many years yet.

The line of trees along the south-eastern side of Commonwealth Avenue inside the footpath and alternating with *Sequoia gigantea* are considered to be this species.

CHAMAECYPARIS Spach.

Species of this genus occur both in western North America and in eastern Asia and Japan.

Chamaecyparis Lawsoniana (Murray) Parl.

Lawson Cypress

Port Orford Cedar

Distinguished principally from the Cypresses by the flattened branchlets and the cones which ripen and shed in one year and are not retained as with the true Cypresses. The arrangement of the cone scales, as with the Cypresses, separates it from *Thuja*, in which the scales are basally arranged.

A large tree in its native habitat in the moist Pacific coast climate of U.S.A., it is not at all suited to Canberra and the tree is quite short lived.

If it were able to grow in Canberra it would make a splendid lawn specimen, but there are only a few trees which look at all healthy.

Has reached 30 feet with a crown spread of 20 feet.

Of interest as an occasional specimen only.

Propagated by seed or cuttings, it has given rise in cultivation to a great many forms of decorative types which are well known, and there is considerable variation in seed collected in Canberra. It fruits fairly frequently, giving good seed, even though the trees are small. Easy to raise. Readily propagated by cuttings also.

There are some good specimens adjacent to the northern croquet lawn adjoining the Hotel Canberra.

CRYPTOMERIA D. Don

This is a monotypic genus confined to Japan and China.

Cryptomeria japonica (L.f.) D. Don**Sugi**

It is distinct from other conifers, resembling more closely perhaps than any other *Sequoia gigantea*. However, the leaves are longer and narrower and curved inwards at the point, unlike that species.

It is native to large sections of Japan, especially Honshu and the southern islands up to moderate elevations. It is extensively planted for softwood timber production there and virgin stands are comparatively limited. It makes a good-sized tree. There are at least two distinct races on Honshu, one on the Asiatic and one on the Pacific side, and there are several horticultural forms, the best known of which is var. *elegans*, which has longer leaves and turns a conspicuous bronze colour in winter. The tree thrives in a moderate climate with a summer rainfall and the dryness of Canberra is too severe for it. There are a few specimens up to 30 years of age but they have a poor appearance.

Maximum height 35 feet with a spread of 15 feet.

Of botanical interest only, except perhaps for certain decorative purposes served by var. *elegans*. Not to be recommended for the Canberra climate.

Propagated by seed and grows easily from cuttings. Fruits some years in Canberra but contains a lot of infertile seed, otherwise easy to raise. Pollen shed end of August.

There are a few specimens at the corners of Cowper and Suttor Streets, Ainslie.

CUPRESSUS Linnaeus**CYPRESS**

The true Cupresses are spread throughout the warm temperate regions of the northern hemisphere. Many species have been planted ornamentally and they are well represented in Canberra. The longevity of the Mediterranean and Asiatic species is markedly greater than that of the American species. Several are useful to give texture and colour contrast in foliage, and some make good single specimens.

- A1 Fruit more than 1½ inches long .. *sempervirens*
- A2 Fruit less than 1½ inches long—
 - B1 Foliage green—
 - C1 Branchlets arranged towards tips in one plane—
 - D1 Fruits less than ½ inch *funnebris*
 - D2 Fruits more than ½ inch *torulosa*
 - C2 Branchlets arranged around the main axis of the shoot towards the tips *macrocarpa*
 - B2 Foliage greyish or glaucous—
 - E1 Fruit 1½ inches long *arizonica*
 - E2 Fruit 1 inch or less long—
 - F1 Fruit shiny brown .. *Goveniana*
 - F2 Fruit glaucous—
 - G1 Foliage highly resinous and sticky *Macnabiana*
 - G2 Foliage slightly resinous .. *lusitanica*

Cupressus arizonica Greene**Arizona Cypress**

This is distinguished readily from other species by the glaucous silvery foliage, although it shows considerable variation in this from plant to plant. This character is shared with the closely related *C. glabra* which is also native to U.S.A. However, the latter has a smooth-barked trunk, unlike *C. arizonica*, and it is doubtful if there are any which truly belong to this species in Canberra.

Native to Arizona and adjacent areas it appears to be a long-lived species there, where it occurs naturally in forest on dry mountains in association with other conifers, as for example on the Santa Rita range near Tucson.

It is a handsome tree and is planted extensively in Canberra. It is of regular form and grows vigorously when planted with plenty of growing space, but under these conditions is rather short lived—often about 30 to 40 years. Signs of decline are heavy fruiting followed by a dead top. Some individuals die much sooner than others due to individual inherited differences.

It commonly reaches 40 feet in height, with a crown spread of 30 feet, and often with branches sweeping the ground.

It is useful where fairly quick medium-term screening is necessary and it makes an excellent windbreak tree.

Propagated by seed. Fruits well in Canberra, generally every year. Pollen sheds during August. Seed is often carried in old cones for a year or two. Good specimens are to be seen in King George Terrace (Plate 5).

Cupressus funebris Endl.**Chinese Weeping Cypress**

The terminal branchlets are distinctly arranged in one plane. The small cones, together with its drooping habit, distinguish it from the other species.

It is native to Central China in mountain districts and is a graceful drooping species not as fast growing as other species of the genus, but long lived.

Has reached 40 feet with a crown spread of 20 feet.

A graceful species with light yellowish green foliage colour.

Propagated by seed. Fruits rather more sparingly than most other species.

There are several good trees at Duntroon near the Officers' Mess and at Acton in the Hospital grounds.

Cupressus Goveniana Gord.**Gowen Cypress**

Carries strikingly shiny brown fruits by which it is usually distinguished.

Native to California on the Monterey Peninsula adjacent to *Cupressus macrocarpa* (q.v.), but a little farther inland and more widespread than this species.

Less attractive than other species in Canberra, it thrives better than *C. macrocarpa*, but not quite as well as *C. arizonica*.

Reaches 50 feet with a 40-foot crown spread, with branches sweeping the ground.

Landscape use is similar to *C. arizonica* but is not as satisfactory as that species.

Propagated by seed. Fruits heavily. There is a tree in the Prime Minister's Lodge, on the National Circuit boundary.

Cupressus lusitanica Mill.

Portuguese Cypress

Closely related to *C. Goveniana*, from which it is separated by the glaucous fruits, at least in the earlier stages, or the lack of the sheen the former species develops.

Native to Mexico, it has been naturalized in Portugal where it is thought to have been introduced probably more than 300 years ago. Similar to *C. Goveniana* from which at times it is difficult to distinguish.

Propagated by seed. Fruits well in Canberra. Good specimens in Westbourne Woods.

Cupressus Macnabiana Murray

The slender, compressed resinous branchlet system makes this species distinct.

Native to California, often on dry hills on the Sierra foothills. A small tree. Appears to be better adapted to Canberra than the coastal Californian species.

It reaches 25 feet high, with a 15-foot crown spread.

Limited use in landscape planting, but drought resistant and slow growing.

Propagated by seed. Fruits moderately well. Pollen is shed at the end of August.

There are few specimens, but one of considerable age is at the right-hand side of the entrance to Government House.

Cupressus macrocarpa Gord.

Monterey Cypress

A distinctive and widely planted tree noted for the pleasant fragrant odour of the crushed branchlets in contrast with the majority of the other species, and also the brighter green colour.

Native to a very small coastal strip about 200 yards wide on the Monterey Peninsula, California. It stands in places there on rocky outcrops exposed to the wind and salt spray. It is under these conditions a very picturesque flat topped tree, often of gnarled appearance.

It is not now plentiful in Canberra as it is not well suited to the climate and in addition seems to be affected by fungal canker. It has been used as a hedge, but after a few years some plants die each year and it usually becomes unsatisfactory. It apparently lives longer as an open grown tree but is subject to the same trouble, although there are occasionally trees about 30 years old.

It has reached a height of about 50 feet with a crown spread of some 40 feet, but is not recommended for use in Canberra.

Propagated by seed. Fruits well, generally every year. Pollen shed about June.

Specimens may be seen at the old Acton Nursery, Hospital grounds, and Westbourne Woods.

Cupressus sempervirens Linnaeus
var. **stricta** Ait.
var. **horizontalis** (Mill.) Gord.

Roman Cypress
Mediterranean Cypress

Generally seen in the fastigate form (var. *stricta*) and therefore, one of the most easily distinguished trees, often locally called "Pencil Pine". Some specimens of the variety *horizontalis* are planted, however. It has the largest cone of any of the Cypresses.

Native to the Mediterranean region, it is believed not to be indigenous in Southern Europe, but its occurrence in Italy is the result of an introduction in early historic times. Natural stands occur in North Africa, through Algeria to the Middle East. It is abundant in parts of Italy and is regarded as one of the distinct features of the Tuscan landscape. Here it regenerates spontaneously and is found in both the spreading and fastigate forms. It is one of the best known and most extensively planted trees in countries with the climate of the Mediterranean region, and appears in historic records, indicating that it has been known and cultivated since ancient times.

It is widely distributed in Canberra and it thrives, making an excellent tree where formal treatment is desired. Unlike most of the American species, it promises to be a long lived tree.

A very formal, striking and rather sombre tree, which is generally restricted to formal arrangements or isolated specific features.

Propagated by seed or grafting. Fruits well every year. Pollen shed early Spring. Seedlings from good fastigate forms segregate giving about 30 per cent. truly fastigate forms with the remainder with the horizontal habit in varying degree. The shape of some fastigate individuals is apt to be spoiled by heavy cone development which weighs down some of the longer branches.

The oldest and largest tree is in the grounds of the Hospital, where it reaches about 50 feet in height (Plate 3). There are several clumps near the top of City Hill.

Cupressus torulosa Don

Himalayan Cypress

The 'bi-seriate arrangement of the ultimate branchlets is distinctive.

Native to the Himalaya, where it becomes a very large tree.

Apart from *C. sempervirens* it is more suited to the climate here than other species. Grows vigorously and well and has a distinctive form when young, being very wide-spreading at the base and tapering sharply to an acute point at the apex. Makes a better hedge than any of the other *Cupressus* species.

It has reached 60 feet with a 40 feet crown spread and has a typical Cypress appearance.

Useful as a tall, dense screen or lawn specimen, but is rather slow growing.

Propagated by seed. Fruits well every year. Pollen is shed in July.

A good specimen is growing near the office, Yarralumla Nursery.

GINKGO Linnaeus

A monotypic genus thought to be indigenous to China but it is doubtful if known in a native habitat. It is not strictly a conifer being more accurately described as a gymnosperm.

Ginkgo biloba L.

Maidenhair Tree

The very distinctive leaf shape, namely, a fan-shaped leaf with parallel veins rather like a large Maidenhair fern leaf, makes it distinctive. Further, it is another of the few deciduous gymnosperms. This species has been in cultivation for a very long time, being planted in temple and shrine grounds in China and Japan. There are reports that it has been found in recent years in natural stands in China. This and related species were widely distributed in former geological periods and well preserved as fossils. It is regarded as a relic of a group of plants flourishing mainly in another geological era.

Well grown it is a very fine tree, and used as a street tree in some places, but apparently requires a summer rainfall for satisfactory growth, and it can be used only sparingly in Canberra. It is not well suited to the climate but appears to be sufficiently adaptable to make occasional plantings with it.

It has reached 35 feet on a favorable site.

Its unique foliage and appearance and its beautiful clear yellow autumn colouring make it worth persevering with. The tree is dioecious, and the female tree should be avoided because the fruit when ripe has a disagreeable odour.

Propagated by seed, but the tree as so far seen here does not fruit, and seed must be imported.

On the south-eastern side of Lawley House there is a small specimen.

JUNIPERUS Linnaeus

JUNIPER

A rather large genus resembling cypress somewhat which is distributed widely in the Northern hemisphere and some of which have special uses such as the wood of *J. virginiana* for lead pencils—hence its name, pencil cedar. The fruit of the common European juniper is used in flavouring gin.

The tree is distinguished from *Cupressus* by the fruit which in *Juniperus* is a berry instead of a woody cone as in the former.

The Junipers are a group difficult to classify, as they are subject to a great deal of variation and many horticultural forms have been selected. There are several species from the colder and drier parts of the United States of America, such as northern Arizona and Utah, which offer considerable promise for Canberra planting.

Juniperus communis Linnaeus

Common Juniper

The leaves are awl shaped in contrast with several other species which have this character only in the juvenile condition. Each leaf has a broad white band lined with stomata on the upper surface.

Widely distributed in northern and central Europe and in the mountains bordering the Mediterranean.

A shrub rather than a tree in the Canberra climate, it is of little value in planting. It fruits readily and is not difficult to propagate from seed or cuttings. Yarralumla Nursery has specimens.

***Juniperus virginiana* Linnaeus**

Pencil Cedar

Distinguished particularly by the odour of the mature wood, which is the well-known red wood used in high quality pencils in commerce. The leaves are appressed and scale-like when mature.

This withstands the climate rather better than Common Juniper, but nevertheless does not look thrifty. There is one at Westbourne Woods about 15-20 feet tall.

Not particularly attractive and is more of botanical interest than horticultural value.

Fruits occasionally; has not been propagated to any extent.

***Juniperus monosperma* (Engelm.) Sarg.**

Cherry Stone Juniper

This drought and cold resistant tree occurs in Utah and Colorado in the United States. It grows well in Canberra, although not very quickly, but has excellent glaucous foliage and good form. Although the oldest trees are less than fifteen years old, it appears that it may be used in landscape in the same way that *Cupressus arizonica* is used, but will stand more difficult conditions and perhaps live longer. In its own habitat it is a small tree, usually not more than 40 feet, and produces durable timber. Specimens are planted in Westbourne Woods.

LARIX Mill.

LARCH

Larch has the distinction of being amongst the few deciduous conifers.

There are few species in this genus and they are distributed in Europe, Asia and North America, but they are important forest trees, and the autumn colour as well as the young spring foliage make them attractive also for ornamental planting.

***Larix decidua* Mill.**

European Larch

Native to Central Europe, it has been planted quite extensively in Britain as an introduced species. A tree of very good forest form and of attractive appearance, especially in spring.

It is, unfortunately, not suited to the climate and remains, when planted, little more than a botanical curiosity.

Fruits every year or two, but produces very little if any fertile seed.

There are a few trees in the old Acton Nursery (Hospital grounds) and at Yarralumla Nursery.

The trees at Acton are about 35 feet high, of good form, but there are only three now living.

LIBOCEDRUS Endlicher

A genus with a distribution around the Pacific. In New Guinea and New Zealand (but not in Australia), South America, Pacific coast of North America and China.

Libocedrus decurrens Torrey

Incense Cedar

Most likely to be confused with *Thuja plicata* or *T. orientalis*. It is separated from *Thuja*, however, by the long decurrent leaf bases between the articulations of the branchlets.

It is found on the west coast of America, on the western slopes of the Cascade and Sierra Nevada Ranges to lower California. In central California on the Sierra foothills it occupies at times quite dry sites. It reaches quite large sizes and is of value as a commercial timber, in the past having been used especially for shingles.

It has proved one of the hardier of conifers in Canberra, and while it may suffer severely on the poorest soils, it generally thrives quite well without any assistance on better soils. With a little water it becomes quite luxuriant. It has quite a columnar appearance and on better sites grows fairly fast.

It has reached 50 feet with a 20 feet crown spread in 25 years.

A very useful conifer in the landscape because of its good colour, erect and rather compact form without extreme formality, and its suitability for this climate. A useful contrasting species in conifer clumps or where a coniferous evergreen is desired.

Propagated by seed, it fruits well every two or three years and produces crops of cones containing seed with a good viability. Pollen-shed in June.

There are some good specimens on the lawns at Civic Centre between the Sydney and Melbourne Buildings (Plate 4), and in front of the Hotel Wellington.

METASEQUOIA Hu & Cheng

A monotypic genus growing in China.

Metasequoia glyptostroboides Hu & Cheng

DAWN REDWOOD

This is a particularly interesting tree, and along with Larch and *Taxodium* is one of the few deciduous conifers. It was discovered growing in China about 1940, although the genus was known as a fossil some years previously. It has now been quite widely distributed in gardens and a few are planted in Canberra.

The foliage is very decorative and bears some resemblance both to *Taxodium distichum* and to *Sequoia sempervirens*.

It is propagated by seed when this is available, but also grows easily from cuttings.

It is probably too drought-sensitive to be used widely, but it is expected that a few specimens will be grown here and there in Canberra, both because of their beauty and botanical interest.

It has not yet been fruited in Canberra.

There is a specimen in the grounds adjoining the south side of the Hotel Canberra.

PICEA Dietrich

SPRUCE

As with the Firs, Spruces are widely spread and important forest trees through the cool temperate parts of the northern hemisphere. They are outstanding timber producers. The majority of the species is not suited to Canberra.

Picea Abies (L.) Karst.

Norway Spruce

One of the principal timber trees of Europe where it is extensively planted, especially for example in Southern Bavaria, Germany. The pale reddish-brown colour of the bulk of the current season's shoots is distinctive.

Provided it is given reasonable growing conditions and water supply, it does fairly well.

Dimensions: 50 feet height; crown spread 30 feet.

It retains its distinctive and somewhat drooping habit but cannot be used as more than an occasional specimen tree.

Propagated readily from seed. Fruits occasionally, perhaps every three years, producing good seed.

There are a few specimens, the most prominent being in the circular feature at the eastern side of the Hospital grounds.

Picea glauca (Moench.) Voss.

White Spruce

Has shorter, stiffer needles and is somewhat glaucous in appearance and has much smaller cones than the Norway Spruce.

Native principally to the north-west of the U.S.A. Occurs occasionally as a decorative species in gardens. Slow growing and needs good water supply.

Small trees only to be seen.

Of limited use where it is desirable as a point of interest. Propagated by seed. Fruits at a young age and in most years, but the cones contain a lot of infertile seed.

Specimens may be seen in gardens on National Circuit between Hotham Crescent and Gray Street, and in front of the Canberra Club in Moore Street.

PINUS Linnaeus

PINE

The true Pines are one of the most important groups of conifers and are very widespread throughout the Northern Hemisphere from high northern latitudes to parts of the tropics where they reach the equator as in Sumatra. A large genus, there is a considerable number of species of great value in Canberra, both for ornamental and economic reasons.

- A. Needles grouped in fives—
 - B. Needles coarse more than 8 inches long *Torreyana*
 - B1. Needles slender less than 8 inches long—
 - C. Needles flexed and greenish *Griffithii*
 - C1. Needles straight and with prominent whitish lines *flexilis*
- A1. Needles grouped in threes—
 - D. Bud scales free at tips—
 - E. Bud scales prominently reflexed *canariensis*
 - E1. Bud scales not reflexed *longifolia*
 - D1. Bud scales resinous and mostly appressed—
 - F. Needles more than 9 inches long—
 - G. Cones more than 1 foot long *Coulteri*
 - G1. Cones less than 9 inches *Sabiniana*
 - F1. Needles less than 9 inches long—
 - H. Needles less than 6 inches long, rather bright green—
 - I Cones assymetrical *radiata*
 - I1. Cones symmetrical *Taeda*
 - H1. Needles more than 6 inches long, dull or grey green—
 - J. Young twigs glaucous *Jeffreyi*
 - J1. Young twigs shining brown *ponderosa*
- A.2. Needles grouped in twos—
 - K. Bud scales appressed and resinous *muricata*
 - K1. Bud scales free at tips
 - L. Bud scales broad-tipped and spreading *nigra*
 - L1. Bud scales narrow, lanceolate tips and strongly recurved—
 - M. Needles very slender less than 4 inches long. Cones stalked *halepensis*
 - M1. Needles more than 4 inches—
 - N. Tree round-headed, umbrella shaped. Needles approx. 6 inches. Cones 4 inches diameter *Pinea*

N1. Tree upright not umbrella shaped. Needles approx. 8 inches. Cones 2-3 inches *pinaster*

***Pinus attenuata* Lemm.**

Knob-cone Pine

This is closely similar to *Pinus radiata*, from which it is distinguished by the presence of a prominent umbo on the cone scales. There are only a few trees in Canberra. It has special interest, however, because it occurs naturally in California on the Sierras at much higher elevations than the natural habitat of *P. radiata*, which is often near the coast. In these mountain localities it withstands snow. *P. radiata* is particularly susceptible to snow-break.

It fruits quite well and is propagated by seed.

There is one near the old entrance to Yarralumla Nursery.

***Pinus canariensis* C.Sm.**

Canary Island Pine

The spreading and reflexed scales of the bud in winter with prominent white margins and the long needles up to 12 inches are distinctive.

Confined naturally to the Canary Islands at elevations of some 3,000 to 6,000 feet, it has been widely planted in many localities in the Southern Hemisphere.

Somewhat slow growing compared with *P. radiata*, it is nevertheless one of the most handsome of the Pines, with good form and attractive foliage and reddish, brown, rather papery bark. There are some fine old trees in the old Acton Nursery. It gives promise of being a long-lived tree and withstands the climate very well.

It has reached 84 feet with a crown spread of 32 feet.

One of the most decorative of the Pines, the needle colour and arrangement, and reddish tint of the bark make it attractive.

It is propagated usually by seed and it fruits every year or two and when it does it has good crops. It will coppice from stumps, and also epicormic shoots occur on the trunk, which is a propensity shared with very few other conifers. After fire or frost damage it recovers and renews its crown from dormant buds, a feature shared with few other *Pinus* species. The seedlings are extremely difficult to transplant because of the deficient lateral root growth and the very vigorous tap root which has been traced to a depth of several yards on a seedling only a foot or so tall. It is most satisfactorily grown in pots or tubes for planting out. Pollen sheds at the end of October. It can be propagated by cuttings from epicormic shoots.

Specimens are planted at Old Canberra House, Hospital Grounds, Westbourne Woods.

Pinus Coulteri Don

**Coulter's Pine
Big Cone Pine**

Distinguished particularly by the very large, heavily-armed cones, sometimes well over 12 inches long.

Native to California, sometimes with Digger Pine, in the Sierra foothills, and also on the coastal ranges where it makes a moderate sized tree.

It has done quite well in this district, but its growth is not fast. Will withstand dry conditions and poor soils and retains a good form, though the branches are very heavy.

Has reached 40 feet with a spread of 30 feet in open plantings.

Has landscape use rather similar to *P. Sabiniana*, but lacks the faster rate of growth of this latter species, though it is in some ways a more pleasing looking species.

Propagated by seed. Fruits quite well every couple of years. Seed remains viable for some time. Pollen-shed November.

Westbourne Woods has several specimens near the old entrance.

Pinus flexilis James

Limber Pine

A five-needled Pine, the needles of which are much shorter than its relative *P. Griffithii*, and they are erect and not drooping.

Native at high elevations, principally in the Sierras in California. The supple character of the branchlets which enables it to withstand heavy snow and ice, gives it its name.

It is not suited to this climate, and suffers from drought. Of limited ornamental and economic use. It reaches about 30 feet in height.

Propagated by seed. Fruits occasionally in Canberra. The seed must be gathered quickly as it falls soon after the cone ripens. Pollen-shed, November.

There are a few trees in Westbourne Woods.

Pinus Griffithii McClell.

Himalayan Blue Pine

A five-needled Pine with distinctive drooping needles. It is well known by the older name of *P. excelsa*.

An important forest tree in the Himalaya, where it is a very large tree.

There are only a few specimens here, one of considerable size at Duntroon, and a group of three at Westbourne Woods. The climate is too dry for it, but it will make a specimen tree on a good site.

The dropping character of the needles and the light green colour make it a very decorative and attractive species.

The tree at Duntroon is 70 feet high with a diameter at breast height of about 2 feet.

Propagated by seed, it fruits occasionally and viable seed has been obtained. The cones open and shed the seed quickly once ripe (Plate 6). Pollen-shed November.

Duntroon, near the Officers' Mess.

Pinus halepensis Miller**Aleppo Pine**

It is distinguished by the cone-stalk which is much longer than that in any closely related species. The spreading habit of the tree with its forking main stem is also distinctive.

Widely spread in the Mediterranean region, it frequently occupies dry and hard sites and will withstand very hot, dry conditions. There it is invariably confined to limestone soils. The closely related *var. brutia* does occur on non-calcareous soils in Cyprus, but this has not yet been tried effectively in Canberra.

There are several plots of the species in Westbourne Woods, where it has grown only moderately well. It does not look nearly as satisfactory as examples of the same species in limestone soils around Adelaide. It suffers badly from exposure to wind and some very malformed trees may be seen near St. John's Church towards the Molonglo River. It is one of the species introduced with early settlement to the district. In winter the colour becomes very dull and yellowish, but there is reasonable recovery in spring. It may be that the lack of calcareous soil is the factor which contributes to the relatively unsatisfactory appearance of the species in this locality but experimental additions of lime have not corrected the unhealthy colour of thirty-year-old trees.

Of limited use for landscape treatment; there are, nevertheless, some old trees of interesting form. It is the "Lone Pine" of Gallipoli and a specimen is to be seen in the War Memorial Grounds.

Propagated by seed. Fruits moderately well most years.

Pollen is shed in October.

Westbourne Woods, Hospital Grounds.

Pinus Jeffreyi A. Murr.**Jeffrey's Pine**

Distinguished from *P. ponderosa* by the glaucous colour of the young shoots and the aromatic odour of the resin.

A native of California, generally at high elevations above that normal for the *P. ponderosa* belt in the Sierras and coastal ranges. A good timber-producing tree in its native habitat.

It is a slow-growing species in Canberra. The oldest are now about 30 years old and not more than 30 feet in height.

Limited in use because of slow growth, and subject apparently to the fungal disease Diplodia.

Propagated by seed. Fruits occasionally, carrying good seed.

Pollen-shed late October.

Westbourne Woods, Mt. Stromlo Forest.

Pinus longifolia Roxburgh**Chir Pine**

Rather closely related to *P. canariensis*, from which it is to be distinguished by the prominent umbo on its cone scales. The bud is also a little different in that the scales, though free, are not reflexed as strongly as *P. canariensis*.

A native of the outer ranges of the Himalaya. It is an important forest tree in India.

It is not widely planted, and altogether is not as decorative or satisfactory as *P. canariensis*, although it has some of the qualities of that species. The branching is heavier and the growth is slower.

Has reached 60 feet with a crown spread of 30 feet.

For most landscape use, it is superseded by *P. canariensis*.

Propagated by seed. It fruits occasionally. Propagation problems are the same as with *P. canariensis*. Pollen is shed at the beginning of October.

There are a few trees in Westbourne Woods, and one large tree at Duntroon.

***Pinus muricata* D. Don**

Bishop Pine

Distinguished from its near relative, *P. radiata*, by the long resinous bud in the resting stage, and the sharp spines on the cones which are somewhat smaller than *P. radiata*.

Native in scattered areas, generally in coastal California and into Lower California.

It occurs adjoining *P. radiata* on the Monterey Peninsula.

Growth is not very satisfactory here as it seems to suffer rather severely in dry years, and does not give promise of being long lived.

Has reached 40 feet high with a 30 feet crown spread.

Limited use.

Fruits occasionally, producing viable seed. Pollen-shed, end of October.

Eastern side of the Forestry School Oval, and at Duntroon.

***Pinus nigra* Arnold**

Corsican Pine

The small cones and the spreading bud scales in winter with their prominent white margins are distinctive. There are several forms of the tree, which occurs naturally in Southern Europe in Spain and east to the Crimea and Caucasus, in Asia Minor and also North Africa. It is one of the important timber trees of this region, is long-lived and produces very straight stems.

Not widely planted, as the climate is rather dry for it. Growth is rather slow, although it gives promise of being fairly long-lived in spite of the adverse climate.

Has reached so far about 45 feet with a crown spread of 20 feet.

Of limited landscape use, as there are other species which are as good and faster growing.

Propagated by seed. Fruits well every two or three years. Seed falls quickly when ripe, and care must be taken to observe the ripening of the cones. Pollen is shed in November.

There are three or four good trees near the old entrance to Yarralumla Nursery.

PLATE 1.

A branch of Cedrus atlantica (Atlas Cedar) with mature female cones.



PLATE 2.

A branch of Cedrus Deodara (Deodar) with male cones ripe and shedding pollen. Some cedars are almost exclusively male, some almost exclusively female, and others bear cones of both sexes.





PLATE 3.

Cupressus sempervirens var. *stricta* (Roman Cypress) in the grounds of the Hospital. This is one of the oldest planted trees in Canberra and is on the site of the first settlement in the early 1800's.



PLATE 4.

Libocedrus decurrens (Incense Cedar), Northbourne Avenue, Civic Centre. The conical form of this tree is a feature commonly found amongst conifers. This specimen is about 35 years old.

PLATE 5.

A branch of Cupressus arizonica (Arizona Cypress) showing the foliage and cones typical of cypresses.



PLATE 6.

Pinus griffithii (Blue Pine), a typical 5-needled pine with a ripe but unopened cone and a second cone from which the seed has been shed.





PLATE 7.

Pinus radiata (Monterey Pine) grown as an ornamental tree (about 50 years old) beside the Royal Canberra Golf Club House at Acton. The form of the tree when grown as an ornamental in the open is more spreading than that which is characteristic of closely spaced plantations.



PLATE 8.

Pinus Torreyana (Torrey Pine) about 45 years old in a stand in Westbourne Woods.

Pinus Pinaster Ait.

**Maritime Pine
Cluster Pine**

Distinguished by the reflexed bud scales and the stout needles up to 6 inches long, which occur in clusters along the stem, hence the alternative common name.

Native to the Mediterranean region, it is an important tree of Spain and Portugal and has been extensively planted in the Landes in France. It is found naturally also in North Africa. There are several forms of the tree. It is one of the important timber trees of the region and also important for turpentine production.

It does only moderately well in Canberra, the largest tree being at Acton. The stem form, however, is often poor and the tree is susceptible to wind damage when young. It is also frequently liable to rather heavy attack by the pine aphid, *Chermes*.

70 feet high with 30 feet crown spread.

Of limited use.

Propagated by seed. Fruits every two or three years. Pollen-shed, end of October.

Westbourne Woods.

Pinus Pinea Linnaeus

Stone Pine

Distinct in the reflexed bud scales in winter, coupled with the large cone with thickened cone scales. Up to 6 inches long.

Apparently native to the Mediterranean region from Portugal to Asia Minor, but now unknown in the native state. It has been planted for many centuries, and there are no cases in which a stand is known positively to be natural. It is greatly valued for the edible seed and for the very distinct and picturesque appearance of the umbrella-shaped crown.

It has been planted in Canberra from the time of earliest settlement, and there are some particularly fine specimens at Duntroon. It is slow growing, but withstands the climate very well and makes an excellent tree. It develops the characteristic umbrella shape as it becomes an old tree and is indistinguishable from the same species in its native environment.

Has reached 56 feet with a crown spread of 92 feet.

Its distinctive form makes it of special use for landscape purposes, but nevertheless one which, in this region, must be sparing.

Propagated by seed. Fruits well. Cones take three years to ripen. Pollen-shed, November.

Woolshed Creek, Duntroon; St. John's Church.

Pinus ponderosa Laws.

Western Yellow Pine

Distinguished particularly by the appressed bud scales, the long, dark green needles, shining brown young twigs and the minute prickles at the apex of the cone scales.

One of the most important and widely distributed pines in North America, extending from British Columbia to Mexico, and from near the coast to Colorado and Dakota. There are many geographical races of this species which have very distinct growth characteristics and form in many cases.

There are several forms established here, including the Californian Eldorado County type (on the south side of the Forestry School), which is probably the most satisfactory for this climate. It has long needles and in particular very long male cones which are a bright purple in colour at the time of shedding. Two other distinct types occur, namely, that of the Black Hills of Dakota, which apart from being very slow in growth, contains a good many fascicles with only two needles, instead of the normal three, and has cones about half the size of the Eldorado County type. This is known as the variety *scopulorum*, Englemann. The male cones of this type are purple but small and correspondingly narrow, seldom more than an inch and a half, whereas the Eldorado County type approaches 3 inches in length. This is planted in Westbourne Woods.

A third distinct type occurs which corresponds with the form from Arizona, particularly the Coconino County type. This has long needles and rather heavy branching; while not being quite as fast in growth as the Eldorado County form, it is nevertheless a satisfactory tree. The male cones of this form are rather short—perhaps an inch to an inch and a half long—and ovoid in shape. They are also yellowish-green with scarcely any touch of purple colouring at the time of pollen shedding.

The Eldorado County type tree grows very well in Canberra and gives promise of being a long-lived tree, but develops the fungus disease *Diplodia* at times, which may impair its growth. There is a fine specimen on the left-hand side of the entrance drive to Gungahlin homestead.

About 2 feet a year in height growth is commonly achieved. It has reached 84 feet in height with a crown spread of 45 feet.

Propagated by seed. Fruits well every two or three years, giving a high percentage of viable seed. Germination is greatly assisted by refrigeration treatment for 10-20 weeks at a temperature of about 38° F. Pollen-shed during October and November, according to the type of tree.

There are some fine specimens in the Hospital grounds.

Pinus radiata D. Don

Monterey Pine

The principal distinguishing features of this tree are the resinous buds with appressed scales, the rather bright green foliage and the asymmetric cone due to the expansion on one side of the cone only of the basal cone scales.

Native to three or four limited areas, including the Monterey Peninsula in California, and at one or two other spots south on the United States mainland, together with Vera Cruz Islands. On the Monterey Peninsula it forms the main vegetation type. A little further from the sea than the Monterey Cypress, Gowen Cypress and Bishop Pine. One of the most widely planted forest trees in the southern

hemisphere, there are extensive plantations of this species in South Africa, New Zealand, Chile and Australia. Its growth is rapid. The tree, as planted, is generally superior to the species as seen in its native habitat. On the other hand, its physical life is often more limited than in its native habitat. There is a marked change in the longevity of the tree as one proceeds from the centre of Canberra to the higher rainfall parts of the A.C.T. It cannot be expected to remain a satisfactory tree on the Canberra plains after 40 years of age, although, of course, the onset of decline and time of death, as in most species raised from seed, is irregular from tree to tree.

It has been used extensively for windbreaks and screening where tall growth is required.

It exceeds 100 feet, although where the plantings are more for ornamental purposes it is commonly around 80 feet in height with a crown spread of 30 feet (Plate 7).

The rather (for a pine) bright-coloured foliage makes it valuable apart from its other great characters, and it has had wide landscape use apart from being of major importance for commercial timber production.

Usually propagated by seed, it fruits well generally every year, although there is a fluctuation in the size of the seed crop according to seasonal conditions. Pollen is shed in September or early October. Seed is carried in old cones often for several years.

Haig Park contains throughout its length several lines of these trees. There is a fine specimen beside St. John's Church.

***Pinus Sabiniana* Dougl.**

Digger Pine

Distinguished amongst its nearest relatives by the long needles which are often from 9 to 12 inches long and are grey-green in colour.

Native to dry situations in the Sierra foothills in California, where it is found frequently with some other conifers and also with some evergreen oaks in dry, rather depauperate forest.

Well adapted to the Canberra climate, it thrives and makes a good tree with reasonably rapid growth where planted. It shows to some extent a lopsided crown due to the effect of wind but it looks healthy.

The best trees are about 60 feet high with a crown spread of 30 feet.

Of value for screening and general background planting on hard sites.

Propagated by seed. Fruits well about every two years, and carries good seed. Pollen-shed end of October.

There is a good specimen near the Gun Gates, Duntroon.

***Pinus Taeda* Linnaeus**

Loblolly Pine

In identification confusion with *P. radiata* is most likely, from which it may be distinguished by the very long resinous bud scales in the winter conditions, and the symmetrical cone.

Native to the south-east of the U.S.A. from New Jersey to Texas, where it is an important forest species.

While planted extensively in northern New South Wales and Queensland, it does only moderately in the Canberra climate, to which it is not well suited, though it survives the winters reasonably well. There are a few specimens in Westbourne Woods, the largest of which is about 30 feet high with a 20 feet crown spread.

Of limited use.

Propagated by seed. Fruits only occasionally and produces only a small quantity of viable seed.

There are several trees in Westbourne Woods.

Pinus Torreyana Carr.

Soledad Pine Torrey Pine

Though this species has five needles to a fascicle, it is related rather to *P. Jeffreyi* than the pines of the five-needled group. The large cone with strong scales separates it from the other two five-needled kinds.

Native to a very restricted area adjacent to San Diego on the coast of California. It occupies but a few square miles, exposed to the sea. It is often much malformed by wind, and of moderate growth rate.

There is a substantial amount of planting of this species which thrives very well in Canberra and makes a considerably better tree than in its native habitat (Plate 8). Its susceptibility to wind results often in a rather asymmetric crown, and when young it is liable to wind-throw.

It has reached 60 feet in 30 years, with a crown spread of 25 feet.

A rather open tree with greyish foliage, it is useful for mass plantings for large windbreaks.

Propagated by seed, the species is in the minority amongst the pines in that it takes three years from the emergence of the female cone to ripen. It fruits irregularly. There have been some good seed years, but perhaps only every four or five years. Once the cones are ripe they break up and the seed is shed and falls, but being large is easily collected from the ground. Retains viability some years. Pollen-shed October.

Old Canberra House has a fine specimen and there are good lines of trees at Yarralumla Nursery.

PSEUDOTSUGA Carr.

A genus of magnificent trees confined to western North America and eastern Asia.

Pseudotsuga taxifolia (Poir.) Britt.

Douglas Fir

Widely known as the "Oregon" of commerce which has been so largely imported into Australia. The trifid bract protruding beyond the cone scale is the surest way of distinguishing it.

Native on the west coast of North America and also in the Rocky Mountains, where there is a different race which is more glaucous in the foliage and more drought and cold hardy.

Not suited to the climate of Canberra, and there are but a few trees still remaining from early plantings. The dryness in summer seems to be the limiting factor.

Has reached only 20 feet with a 20 feet crown spread.

A beautiful tree with soft foliage when well-grown but no more than a botanical specimen here.

Propagated by seed. Seldom fruits in Canberra.

A small tree is growing in Westbourne Woods and also on Canberra Avenue near Mill Creek. The Canadian flagpole in Central Park is a spar cut from a tree of this species grown in British Columbia.

SEQUOIA Endlicher

There has been a good deal of discussion as to whether the species ordinarily referred to as *Sequoia* should both be retained in this genus. If only the one species remains, then it is a monotypic genus confined to the Pacific coast of the U.S.A.

Sequoia was much more widely distributed in past geological times.

Sequoia sempervirens Endlicher

Redwood

Rather easily distinguished from Big Tree because of the two-ranked arrangement of the leaves on the small branchlets. They are generally arranged all around on the leading shoots. It is further distinct in that it shares, along with *Pinus canariensis*, the rare ability amongst conifers to throw out epicormic shoots and to coppice from stumps.

It is native especially in coastal areas mainly north of San Francisco in California, where it makes a magnificent forest. This area is particularly well known and famous apart from the scenic merits of the woods, because it also contains a group of trees which are reputed to be the tallest in existence. A group of trees containing several over 330 feet contains the tallest one, which is stated to be 338 feet. The tree which most closely approaches this is the Victorian Mountain Ash (*Eucalyptus regnans*), the tallest recorded example of which is 327 feet. The Redwood forest is a very distinctive one and contains, in addition, a group of undergrowth species associated rather exclusively with the tree.

It is not well suited to the Canberra climate, the summer being too dry. There are some trees in Parliament House grounds, but they suffer badly from drought and there are comparatively few still surviving after twenty years.

Well grown, it is of splendid appearance, but when attempts are made to grow the tree in an unsuitable climate the results are always disappointing.

The maximum size so far reached is about 40 feet with a crown spread of 25 feet.

Propagated by seed, it seldom fruits producing viable seed in Canberra. Pollen is shed in July.

There is a small group in Westbourne Woods.

Big Tree

Sequoia gigantea Dcne.

This is sometimes separated from *S. sempervirens* to form another genus, *Sequoiadendron giganteum* (Lindl.) Bucholz. The trees are rather different from *S. sempervirens*, being distinguished by the awl-shaped leaves arranged entirely around the stem.

Native to a limited zone in the Sierras of California in the "Mist Belt", large sections of which are now contained within the Sequoia National Park. Individuals of this species are reputed to be amongst the oldest living trees. They have diameters of an immense size (up to about 30 feet), and the trees are approaching 3,000 years of age. They have not the height growth of the other species but they nevertheless extend well over 200 feet. The bark of the old mature trees is of a very distinct colour, being a light pinkish bronze which is very striking in the forest where it occurs with younger trees of the same species and other conifers such as Sugar Pine and Fir.

It grows well in Canberra only when young, and by 30 years of age most of the trees are suffering from the dry conditions and may die.

There are specimens along Canberra Avenue and two or three good ones in the Hospital grounds, Acton. During 1919-1920 Walter Burley Griffin arranged a planting of more than 120,000 Sequoias; the few survivors of this planting can be seen at Pialligo, south of Fairbairn Avenue (the bitumen road skirting the airport).

TAXODIUM Richards

A small genus of deciduous conifers confined to North America.

Bald Cypress

Taxodium distichum (L.) Rich.

Swamp Cypress

Readily distinguished from other genera by the deciduous habit and the arrangement of the leaves in two opposite horizontal rows on the branchlets, giving the effect of fine fronds.

Native to south-eastern U.S.A., mostly in swampy areas. Under these conditions it develops pneumatophores or breathing-roots. Has been used extensively in the past for timber in this part of the U.S.A.

There are only a few specimens in the A.C.T. but they survive on relatively dry sites without producing pneumatophores. It is a species which might be used rather more in the future than it has been in the past. It is a very attractive tree turning a rich, reddish brown in autumn, and having a very fine delicate appearance when the new leaves break in spring. While it can endure swampy conditions, it is evidently a species which need not have those conditions for satisfactory growth.

A very useful specimen tree for autumn and spring effects.

Propagated by seed, it fruits and carries cones in most years, but with a high proportion of infertile seed. Otherwise it is not difficult to raise.

There is a good-sized tree at Yarralumla Nursery.

TAXUS Linnaeus

YEW

A widely distributed group in the Northern Hemisphere, but the only one in cultivation here is *Taxus baccata*, the English Yew.

Taxus baccata Linnaeus

Common Yew

The climate is apparently too dry for best results with this species, which is native to Britain and Europe. The forms in Canberra are mostly var. *stricta* Laws., the Irish Yew. It is a very slow grower, and generally may be superseded by other species which grow more satisfactorily in the climate. Nevertheless, it does persist.

Of rather limited use because of its unsuitability, it is propagated readily by cuttings. It fruits occasionally.

There is a specimen at Yarralumla Nursery.

THUJA Linnaeus

ARBOR-VITAE

A distinct group of conifers confined mainly to eastern Asia and to North America.

Thuja orientalis Linnaeus

Chinese Arbor-Vitae

The arrangement of the terminal branchlets in a vertical plane is very distinct and distinguishes it from most other species. It is colloquially often called "Book-leaf Cypress".

Native to north and west China, it appears in cultivation in selected horticultural forms. It preserves a formal shape in Canberra, where it grows quite well and reaches a good age.

When raised from seed from Canberra sources two distinct forms may be separated, one rather tall growing and vigorous, of columnar habit and the other rather more globose in shape and much more dwarf and compact.

Commonly reaches 20 feet with a crown spread of 10 feet.

A tree for special purposes where formal treatment and emphasis of some particular feature are desired.

Propagated by seed. Fruits in most years and produces fairly good crops of viable seed.

There are two specimens near the front of the Albert Hall.

Thuja plicata Lamb.

Western Red Cedar

The leaves are a darker and more glossy green than those of *T. orientalis*, and they have a fragrant odour.

Occurs as a large tree over 200 feet high in the coniferous forest of the Pacific coast of North America. The timber is highly valued and it is one of the few conifers which is durable in the ground.

Not at all well suited to the Canberra climate, which is too dry for it.

Has so far reached only 20 feet in height.

Of limited use but of botanical interest.

Fruits seldom, and has not produced any fertile seed so far.

There is one specimen in Westbourne Woods which is growing very slowly but which remains healthy.

BROAD LEAVED TREES

POPULUS Linnaeus

POPLAR

A group of deciduous trees widely spread through the Northern Hemisphere, many species of which are planted for timber, shade or decoration. Rapid growing, relatively short-lived, they are often prominent in the early stages in the development of natural vegetation. A considerable number of clones of both species and hybrids is beginning to appear in cultivation but the classification of these is too complex to deal with here. Only the more distinctive are described.

Populus alba Linnaeus

White Poplar **Abele**

The classification of the Poplars is difficult, one of the complicating factors being that separate plants produce either only male or only female flowers. Moreover, many of the characters are variable and it is not easy to state precise means of separation. In addition, as the Poplars are ordinarily propagated vegetatively it is common to find only a few clones in cultivation. *Populus alba* is an aspen and is one

of the parents in the hybrid *P. alba* x *P. tremula* which is known by the name *P. canescens*. This latter name is sometimes applied to it but it does not seem that any of the Canberra material is correctly designated in this way.

Native to central and southern Europe and in Asia.

A fine tree which grows splendidly here on all deeper soils. It colours beautifully in autumn, a clear yellow, and is also an attractive tree in full leaf with a white under-surface to the leaves. It suckers vigorously from roots, even without the stimulus of cutting or breaking by cultivation, so that it is regarded as unsatisfactory for some purposes. It is also a vigorous species, and its roots will invade any spot which provides it with water and nutrients and therefore it often invades broken drains. Some exception is taken to the tree also because all in Canberra are female and therefore shed a good deal of cotton fluff when the fruits dehisce in spring after they ripen.

While not amongst the longest lived trees, in this climate, to which it is suited, it can be expected to last 80 years. In old trees there is a tendency for branches to break and they must be preserved by judicious pruning and lopping. There has also been some weakness leading to wind damage at the butt due to the development of crown gall.

It reaches, under good conditions, 70 feet with a crown spread of 50 feet.

A tree giving some splendid landscape effects, being attractive at all times of the year, but limited in possible use to some extent because of its suckering habit. The silvery under-surface of the leaf, which is exposed in a slight breeze, is also attractive.

Generally propagated by stem or root cuttings. It fruits and produces seed from which, if sown at once, seedlings are easy to raise. Flowers in September before the leaves break. Has been subject to some attack by the bark borer, *Cryptophaga*, and it is rather susceptible to crown gall, which at times makes some trees unsafe.

Lennox Crossing Road; Murray Crescent in the central plantation.

Populus alba var. pyramidalis Bge.

Upright Silver Poplar

This is also known as *Populus Bolleana*. It is considered to be a variety of *P. alba* and is again a distinctive and attractive tree, resembling the species in most of its characters except for the fastigate habit, which makes it valuable for special purposes. The leaves are more deeply divided than with the species *P. alba*.

Thought to be native to Turkestan. Very well adapted to the Canberra climate, it makes a splendid tree on moderate to good soil. All of the specimens in Canberra are male trees and presumably of a single clone which in flower have bright crimson anthers. It suckers as vigorously as *P. alba* and therefore may be objected to on the same grounds. It is perhaps even more susceptible to crown gall, but is nevertheless a species of considerable value in open spaces. It almost certainly provides the pollen which results in occasional seed set on *P. alba*. Crossing between these two has been carried out artificially.

It has reached 80 feet with a 20 feet crown spread. The fastigate habit makes it valuable for some landscape work.

Propagated by cuttings. Pollen-shed in September. It is attacked somewhat by *Cryptophasa*.

Good specimens are to be seen in Bowen Place.

Populus angulata Ait.

Cottonwood

Distinguished from the other species here by the stellate shaped pith in cross section and the large leaves. Perhaps identical with *Populus deltoides*.

A variable species widely distributed in central and eastern U.S.A.

There are many forms of the tree, and it is likely that the one commonly planted here is *angulata*, which is called more particularly the Southern Cottonwood.

A rapidly growing, big leaved tree which responds very markedly to good deep soils and an abundant water supply, it should be reserved for soils of this type as otherwise it becomes thin-foliaged and unsatisfactory. It is striking when in flower, with its long, red male catkins. Subject at times to wind-break because of the brittle wood, it is nevertheless a valuable tree for the localities in which it may be given plenty of room.

A good shade tree, but lacking in autumn colour.

Commonly reaches 70 feet with a crown spread of 60 feet.

Provides a useful contrast because of the texture of its leaves in the landscape, but is not satisfactory unless it has good soil as the crown becomes very thin. Under dry conditions the crown develops a good deal of dry wood.

Propagated fairly readily by cuttings, it suckers only slightly and then only if the roots are injured or broken. Occasionally attacked by *Cryptophasa*. All trees in Canberra are male. Flowers in September.

Some good specimens are in front of the Hotel Acton.

Populus nigra var. italica Muenchh.

Lombardy Poplar

One of the best known and most easily distinguished trees because of its fastigate habit (Plate 9).

The origin of the form (which is doubtless a single clone) is not known, but it has been cultivated for a very long time in Europe and Asia.

One of the outstanding trees in Canberra. Well adapted to the climate, and of outstanding beauty in autumn when it changes to a rich golden yellow. Fast growing and living to about 100 years, it is one of the few trees planted here since the earliest settlement. It is one of the very widely planted species in the world. It suckers, especially where the roots are cut or disturbed. It is a vigorous seeker of water and will enter any drain where a leak, no matter how small, provides the necessary attraction.

Reaches approximately 96 feet with a crown spread of 20 feet.

A striking fastigate tree of great value in producing landscape effects both in colour and form. Also useful when tall screening is necessary.

Propagated readily by cuttings, all the trees are male and therefore produce no seed. Flowers in September.

The trees are normally at their best for colour from the middle to the end of April. There is a fine group at the Prime Minister's Lodge.

Populus trichocarpa Hook x Maximowiczii Henry

Androscoggin Poplar

One of a group of hybrids produced by Stout and Schreiner in U.S.A. from the American Western Balsam Poplar (*P. trichocarpa*). It is one of the best of the balsam hybrid poplars for landscape work (Plate 10).

Has grown vigorously in Canberra in the last ten years. An attractive tree of 50 feet at this age with viscid buds, a whitish under-surface to the leaves and fine vein reticulations on the under surface. The tree has a good central stem and erect form.

A useful tree for larger spaces. Suckers when the roots are disturbed.

Readily propagated by cuttings. A male clone.

Some trees in Westbourne Woods and younger ones at Forrest Primary School on Hobart Avenue.

Populus Yunnanensis Dode

Yunnan Poplar

A Balsam poplar of south-west China.

It is readily distinguished because of the angled branches and the bright red colour of the young branches.

A handsome upright tree. One of the oldest is at the south-western end of Telopea Park. This is about 60 feet tall and twelve years old.

The bark is somewhat furrowed.

More drought hardy than most other species.

A male clone. Readily propagated by cuttings. Does not sucker very vigorously. Useful as a quick growing tree in more open areas.

There is a good specimen at the southern end of Hobart Avenue.

Populus Simonii Carr.

A balsam poplar occurring naturally in North China. A small to medium sized tree with ovate to rhombic leaves with a glossy dark green upper surface and a distinctly paler lower surface.

It is hardy in Canberra and is useful for some effects where a moderate sized rather upright deciduous tree is needed.

Has reached about 40 feet with a crown spread of 10 feet.

Propagated readily by cuttings.

A line of trees of this species can be seen in the grounds of St. Edmund's College, adjoining Canberra Avenue.

SALIX Linnaeus**WILLOW**

A widely distributed genus in the northern hemisphere extending from Arctic regions and a few even in the southern hemisphere (South America—Plate 11), but none native to Australia. Frequently somewhat similar to the Poplars in their ability to occupy sites undergoing early plant colonization.

Classification of the group is even more difficult than the Poplars due, according to Rehder, to the separation of the sexes, the appearance of the flowers before the leaves are developed, the numerous polymorphic species and the frequent hybrids.

Salix fragilis Linnaeus**Basket Willow**

Distinguished by the upright branching habit and the silky branchlets when young.

Native to Europe, North Africa and Central Asia. A rapidly growing tree which thrives in deep soils and with its feet in water.

It is naturalized along with *S. babylonica* along the larger water-courses and planted since the earliest days of settlement. Subject to the same troubles as *S. babylonica*, but perhaps not so markedly because of the upright habit. It will last from 80 to 100 years, but becomes liable to breakage of large limbs when old.

Reaches 70 feet with a crown spread of 50 feet.

A useful species for planting on flat bottom lands.

Propagated readily by cuttings.

It is seen along the Molonglo at Duntroon mixed with *S. babylonica*.

Salix alba L.**White Willow**

This is almost certainly a hybrid as it occurs in Canberra. An upright willow naturalized along the longer rivers. It has brown young stems which make it distinct.

Mixed rather indiscriminately with *S. babylonica* and *S. fragilis* it has the same capacity for growth and similar site preferences.

Not as large as *S. fragilis* it nevertheless gives a useful contrast along rivers.

Readily propagated by cuttings.

It is seen to advantage at the Duntroon crossing of the Molonglo.

Salix alba var. vitellina (L.) Stokes**Golden Osier**

Distinct because of the brilliant golden yellow colour of the small branches in winter. Similar to *S. fragilis* in its habit of growth, but of outstanding value for obtaining winter effects, lending colour to the landscape by its golden branchlets when other sources are lacking.

Reaches the same dimensions as White Willow.

Readily propagated from cuttings. Does well on wet soils.

There are some good specimens at the corner of Stokes Street and Monaro Crescent.

Salix babylonica Linnaeus

Weeping Willow

One of the most distinctive of trees because of the weeping habit and its wide distribution as a planted tree (Plate 12).

Considered to be native to China, but its history is obscure and it has been planted undoubtedly for a very long time.

This species is thoroughly at home in Canberra and is one of those planted since the earliest settlement. It is more or less naturalized, sometimes being spread in floods along the larger streams and is frequently planted in wet or swampy places throughout the Territory.

An extremely graceful and decorative tree giving striking landscape effects. It will apparently live from 60-80 years before decay and breakage make it unsafe. As trees go, it is not long lived and old trees become quite unsafe unless carefully pruned and lopped. It grows rapidly when young.

Has reached a height of about 70 feet with a crown spread of 60 feet.

Propagated rapidly by cuttings or more usually in rural areas by large branches cut to give the maximum height desired before branching and then put in moist ground. By this means also fencing is avoided if willow planting is carried out in grazing areas. It holds its leaves a long time into autumn for a deciduous tree and is one of the first species to break in spring. A female clone.

It is frequent along the Molonglo River. There are also good specimens on Flinders Way, near La Perouse Street.

Salix caprea Linnaeus

Goat Willow

This is recognized easily because of the densely villous bracts at the base of the catkins.

Native to Europe, north-east Asia and northern Persia, it has been cultivated a long time. Upright in habit, it grows vigorously on moist or reasonable good soils.

Root competition is very vigorous and therefore it is not favoured in gardens. It is apt to be many stemmed, but apparently will endure for as long as most of the other species of *Salix*.

Of use for planting in wet spots and to lend variety to such plantings.

Has reached 40 feet with a crown spread of 30 feet.

Propagated readily by cuttings.

Some good specimens can be seen near the corner of Monaro Crescent and Stokes Street.

JUGLANS Linnaeus

WALNUT

A genus in both north and south America and the Old World from south-east Europe to eastern Asia, some providing magnificent timber as well as the edible nut.

A genus readily distinguishable from other commonly planted deciduous trees generally by the alternate, pinnate leaves and the division of the pith into thin, closely spaced but separated diaphragms.

Juglans nigra Linnaeus

Black Walnut

Distinguished by the darker appearance of the branches and the pubescent branchlets.

A tall tree in its native habitat in the eastern part of the U.S.A. where it is one of the fine trees of the deciduous forest.

A tree which may well be used more here, it apparently does quite well on better soils in Canberra.

There are some trees at Government House 30 feet high with a crown spread of 20 feet in about 25 years, which carry good dense crowns during summer and are very satisfactory shade trees.

Propagated by seed. Fruits fairly regularly. Seeds remain viable for a very short time and must be sown immediately.

Young trees may be seen in Piper Street, Ainslie.

Juglans regia Linnaeus

English Walnut

Grown principally as a nut tree, it is easily separated from *J. nigra* by its silvery-grey bark which remains smooth a long time.

Native to south-east Europe, the Himalaya and China, it is not well suited to Canberra unless aided by garden treatment. Makes only a small tree up to about 30 feet high and 30 feet crown spread, but there are some good trees in private gardens. One of the largest is to be seen in a garden in Howitt Street.

There are various varieties of Walnut, but Wilson's Wonder is one of the most favoured in Canberra.

Desired varieties of English Walnut are not easy to propagate and must be grafted on to seedling stock.

Juglans rupestris Engelm.

Arizona Walnut

A small but fine shade tree which occurs naturally in Arizona, New Mexico and Mexico, it is rather similar to *J. nigra* but the leaflets are narrower and generally less than 1 inch wide.

Like all Walnuts this is difficult to raise while there is still no source of seed in Australia.

The north side of Bedford Street, Deakin, has been planted with this species with plants raised from seed brought by air from Arizona.

Although it is likely to succeed well in Canberra, it is too early yet to be sure of its performance.

BETULA Linnaeus**BIRCH**

A genus widely distributed in the northern hemisphere, often found as a colonizing species on cleared forest sites or new areas.

Mostly with white bark on the older trunks.

Very attractive ornamental trees.

Betula pendula* Roth.*Silver Birch**

Separated from all other species by the outstandingly white exfoliating bark. It is widely known horticulturally as *Betula alba* or *B. verrucosa*.

It is widely distributed in Europe and Asia Minor, and a few natural stands still being found as far south as the Rif in Morocco. An extremely graceful and beautiful small tree, it is decorative at all times of the year, having a good light summer foliage, clear yellow in autumn, and delicate tracery of smaller branches and white trunk in winter.

Unfortunately, it will grow only with the help of some watering as the climate is otherwise too dry, but with this assistance it has lived already about 50 years. It is a tree which does not break readily from buds when pruned and it is easy to ruin a specimen if the pruning is not carried out carefully. Signs of dry conditions are at once apparent by the dead wood at the top of the tree. It generally grows rapidly when young, increasing as much as 6 feet or more in a year. The wood is strong and generally forms a good central stem for some height and needs relatively little attention or pruning. It is not subject to wind break.

It has reached about 40 feet with a crown spread of 20 feet and is one of the most useful garden species for Canberra (Plate 24).

Propagated by seed, it fruits every year and usually quite heavily. Germination percentages are low but the seed crops are very heavy. The seed responds to cold treatment in a refrigerator to improve germination. It flowers in early September, and the seed is often carried through the winter on the tree.

It is damaged (in Canberra soils) by waterlogging and there were numerous deaths resulting from the wet winter of 1956. There are fine old specimens in the Hospital grounds, Acton, and a clump in the courtyard of University House. It is also planted in Mitchell Street (Plate 23).

CASTANEA Mill**CHESTNUT**

One of the valuable trees of the northern hemisphere of the deciduous forest regions with better soils. Of great importance in the economy of some countries in Europe, such as Italy.

Castanea sativa Mill.**Spanish Chestnut**

Distinguished by the spiny fruit.

Probably native to southern Europe, western Asia and North Africa. A very important species in southern Europe, where it fulfils a diversity of needs, providing valuable fruit which is collected in autumn, particularly valuable tan bark and high-class wood and poles. The American species, *C. dentata*, has been practically eliminated by the chestnut blight which was introduced with the Tree of Heaven from China. There is great concern over the spread of the disease on *C. sativa* in Europe; the elimination of the species would be extremely serious because it still plays such an important part in the rural economy in places like Spain and Italy.

Not well adapted to the climate of Canberra as in the main the conditions are too dry for it. A few isolated trees are doing moderately well and have reached 25 feet high with a crown spread of 25 feet. Even though not thrifty, it will hold on in poor sites for many years before finally dying. It is not under these circumstances an attractive specimen. The handsome foliage makes it a tree worth growing if the conditions are sufficiently good.

An excellent shade tree.

Propagated by seed, it fruits in most years and produces good fruit here. Flowers in spring. Seeds do not retain viability for long. Chestnuts good enough to roast are produced in wetter years.

Some specimens can be seen in Bourke Street, Barton.

QUERCUS Linnaeus**OAK**

One or the most important genera of trees in the northern hemisphere extending south to Colombia in South America and to the mountains of New Guinea north of Australia. It provides several valuable species for landscape use in Canberra and gives promise of providing a substantial number of additional successful introductions.

The Oaks fall into two main groups—Black Oaks and White Oaks. The Black Oaks, which are especially characteristic of North America, are distinguished by several features but the most easily seen is the bristle point of the leaf lobes which is absent in the White Oaks (Plates 13 and 18).

A1 Trees quite deciduous or most of leaves falling in winter—

B1 lobes of leaves bristle-pointed—

C1 Leaves more than 4 inches long—

D1 Leaves more than 2 inches wide .. *borealis*

D2 Leaves less than 2 inches wide .. *palustris*

C2 Leaves less than 4 inches long .. *Kelloggii*

B2 Lobes of leaves not bristle-pointed—

E1 Leaves with prominent stipules ($\frac{1}{4}$ inch) .. *Cerris*

E2 Leaves without prominent stipules—

F1 Leaf lobes generally more than 8 each side—

G1 Semi-evergreen, some leaves remaining all
the year *var. Mirbeckii*

- G2 Completely deciduous *lusitanica*
- F2 Leaf lobes generally less than 8 on each side—
often much less—
 - H1 Largest leaves less than 6 inches long—
 - I1 Acorns pedunculate *pedunculata*
 - I2 Acorns sessile or almost to—
 - J1 Leaves from 3 to 6 inches long, not
glaucous *lobata*
 - J2 Leaves from 1 inch to 3 inches long,
glaucous *Douglasii*
 - H2 Largest leaves more than 6 inches long—
 - K1 Acorn cup fringed with appendage
branchlets often corky-winged *macrocarpa*
 - K2 Cup scales appressed *bicolor*
- A2 Trees evergreen—
 - L1 Bark deeply fissured and corky *suber*
 - L2 Bark not corky—
 - M1 Many leaves holly-like and
bristle-pointed—
 - N1 Leaves broadly elliptical *agrifolia*
 - N2 Leaves oblong—
 - O1 Largest leaves rather
narrow, $\frac{1}{2}$ wide *Wizlizenii*
 - O2 Largest leaves broader
than $\frac{1}{2}$ inch *Ilex*
 - M2 Leaves usually entire and if
lobed without significant points
to lobes *Engelmanii*

Quercus agrifolia Nee.

Coast Live Oak

A small, round-headed evergreen tree of the coast of California resembling rather closely the Holm Oak of the Mediterranean. It is distinguished by the broad leaf.

It is still a recent introduction and planted only recently in Canberra. It is hardy but slow growing.

Planted in Westbourne Woods.

Quercus bicolor Willd.

Swamp White Oak

Distinguished by the coarsely sinuate-dentate leaves which narrow markedly towards the base, and the light greyish-brown, scaly bark.

Native from the Atlantic seaboard to the mid-west of the U.S.A.

This species has grown quite well, especially on better soils. It retains a good central stem, and makes a nicely shaped crown. In full leaf it is handsome and a good shade tree.

It has reached about 40 feet with a crown spread of 35 feet.

Propagated by seed, it fruits well and almost every year. It is somewhat variable in seedling growth. Seedlings show considerable variation and suggest possible hybridizing with both *Q. macrocarpa* and *Q. alba*.

There are good specimens in National Circuit between Hobart Avenue and Franklin Street.

Quercus borealis Michx.f.

Red Oak

This tree is a black oak like *Q. palustris* but is distinguished from that species by the longer leaves, generally up to 8 inches long.

A species occurring in more northerly regions than *Q. palustris* in the U.S.A. and Canada. It is widely distributed.

It is a beautiful tree. As yet there are but relatively small and young specimens in Canberra. It colours particularly well in autumn and does not retain the dead leaves to the same extent as *Q. palustris*. The type here has not quite such good form nor is it as fast growing as *Q. palustris*, and so far it has not fruited.

It has reached 30 feet in height with a crown spread of 15 feet.

This tree is not as well adapted as *Q. palustris* to the dry seasons, but its fine red colouring in autumn nevertheless makes it a useful species for areas of better soil.

Propagated by seed.

The inner triangular area at the southern end of Hobart Avenue adjoining Empire Circuit is planted entirely with these trees.

Quercus Cerris Linnaeus

Turkey Oak

This tree is easily distinguished by the subulate persistent stipules around the bud.

It is native to southern Europe and western Asia. It is a tree often found at moderate elevations above the Chestnut zone in the Mediterranean region.

It is well suited to Canberra and is a good shade tree with a broad spreading habit and decorative foliage. Planted up to the present to a small extent, it gives promise of being a satisfactory tree.

The oldest is about 30 years of age and is some 40 feet high with a crown spread of about 35 feet. It is a tree which might be planted more extensively in the future.

Propagated by seed, it fruits well in most years. Seed must be sown soon after ripening. Pollen sheds during September.

Macarthur Avenue between Bonney Street and Cowper Street is planted with this species. It is also at Narellan House.

Quercus Douglasii H. & A.

Blue Oak

A moderate sized, round-headed deciduous tree of the Valley of California often on sites near *Q. lobata*. It is distinguished by the distinctly glaucous foliage with quite small lobes to the leaves.

A species which it seems should be very well suited to Canberra but which is still a recent introduction.

It is planted in Lobelia Street, O'Connor.

Quercus Engelmannii Greene

Mesa Oak

A moderate sized, round-headed semi-deciduous tree of southern California.

It is distinguished by leaves which are mostly entire (i.e. leaves without lobes or serrations).

Not yet well tried, as it is a recent introduction, it gives promise of thriving well and has grown well while young.

Planted in Caladenia Street, O'Connor.

Quercus Ilex Linnaeus

Holm Oak

This is an evergreen tree, distinguished from *Q. Suber* by the smooth bark.

Very widely spread in Mediterranean regions both in Europe, Africa and Asia Minor. It has dark green, glossy foliage and makes a very dense crowned tree.

It is fairly well suited to conditions here if the soil is adequate. It grows slowly but will evidently persist a long time. It is a very adaptable species in its native habitat. It is somewhat variable in the form we have, indicating considerable genetic variation, and some seedlings fail or become very ragged due to dying back of the tips.

It may be clipped and has been used in formal gardens, especially in Italy, quite extensively. It is also found as a street tree in Italy. It is of great value in the regions where it occurs naturally, both for firewood and shelter, and has been planted in southern England.

There are some well grown young trees in Canberra reaching about 40 feet in height with a crown spread of 30 feet.

It is a very valuable evergreen of especial value because of its dark glossy foliage. Unfortunately, it is quite susceptible to water-logging and does not do well on very shallow soils.

Propagated by seed, it fruits well in most years, but because of the variation in the seedlings rather rigid selection is necessary to secure good types. It is difficult to transplant and is therefore generally raised in pots. Seed must be sown as soon as ripe.

Bonney Street, Ainslie, has some good specimens, and also Torres Street, Red Hill.

Quercus Kelloggii Newb.

California Black Oak

A black oak of medium size found in the mountains of California both of the coast range and the Sierras. Distinguished by the three lobes on either side of the leaf.

The spring foliage is a very delicate and attractive pink for a few weeks after bud burst. A relatively recent introduction, it is too early yet to say how well it will do.

Westbourne Woods.

Quercus lobata Nee

Valley Oak

A white oak, readily distinguished by the long acorn and deeply lobed leaves. Quite deciduous. Characteristic of the valley bottoms in California, it is a fine, large spreading oak introduced to Canberra in the last few years. It should be well suited to the area, especially on the deeper soils.

It is still too early to decide how well it will grow, but young trees are promising.

Clianthus Street, O'Connor is planted with this species.

Quercus lusitanica Lam.

Lusitanian Oak

This is distinguished from English Oak by the more regularly and less deeply lobed leaves.

It is native to Spain and Portugal.

The species is well adapted to the climate of Canberra, where it stands dry spells better than English Oak. It is rather slow-growing, but hardy and persistent. An excellent shade tree, it sheds its leaves rather later than most of the other species of Oak.

It has reached 40 feet and a crown spread of 30 feet.

Propagated by seed, it fruits well in most years. Pollen sheds in September. Seed must be sown soon after ripening.

There are several forms of this species, and some botanists have described them as separate species or subspecies. There is a good deal of variation in seedlings. One of the best forms is to be seen in Booroondara Street. It is sometimes called "*Q. Hodgkinsonii*".

There are good specimens in Suttor Street, Ainslie (Plate 15).

Quercus lusitanica var. Mirbeckii Guerke

Algerian Oak

This species is most readily distinguished by the fact that it holds some leaves near the main stem which remain green right through the winter and sheds them only as the new crown breaks in spring.

It is native to Spain and North Africa.

A handsome tree, well suited to the Canberra climate where it makes very satisfactory growth. It is semi-evergreen and retains, especially near the main trunk and basal parts of the tree, green leaves throughout the winter. It is an excellent shade tree, rather slow-growing, like most of the Oaks, but likely to be very long-lived and durable. Its crown remains compact and firm and it is a valuable species.

It has reached about 50 feet with a crown spread of 35 feet.

Propagated by seed, it fruits generally every year. Pollen sheds September.

Trees are planted inside the Telopea Park High School grounds along New South Wales Crescent. Also National Circuit near the junction of Hotham Crescent.

Quercus macrocarpa Michx.

Burr Oak

This species is closely related to *Q. bicolor*, from which it may be separated by the broader leaf base, somewhat corky wings to many of the branches and the fringe-like scales of the acorn cup. A tree more broadly spreading and round-headed than *Q. bicolor*, and with rather more shaggy bark, it is native to approximately the same regions of the U.S.A. as *Q. bicolor*.

It forms a good shade tree and does well in Canberra.

It has reached 40 feet with a crown spread of about 35 feet.

Propagated by seed, it fruits well every year. Pollen sheds in September. There is marked variation in the seedlings, some giving a good dark colour in autumn although most of the mature trees give practically no autumn colouring. There is possible hybridizing with *Q. bicolor* and there are also some forms with much more dissected leaves than the species, which suggests relationship with *Q. alba*.

There are good specimens in National Circuit near the Kings Avenue junction (Plate 16).

Quercus palustris Muenchh.

Pin Oak

This is a black oak which is distinguishable by the bristle-pointed apex of the leaf lobes.

Native to New England, and the mid-west south to Arkansas in the U.S.A.

One of the outstanding trees of Canberra, it grows quickly for an oak with a good upright habit, carries a full crown with a dark green foliage in summer and colours brilliantly in shades of scarlet and crimson in autumn. The leaves are carried, on all except the extremities of the branches, right through the winter, during which time they have a rich, glossy, light-brown colour. They are shed just as the new buds burst in spring.

An excellent street tree, it thrives on all but the poorest sites and grows faster than most other oaks. It will persist for some years under poor conditions, but begins to develop dead wood in the crown if subjected to shallow soils. Colouring in autumn is clearly affected by the nutrition of the tree, and under starved conditions at times some lighter and more delicate colours are produced. Retains a good central stem, and the wood is tough. There are signs that perhaps on some of the harder soils it may be necessary to limit the height of the tree by careful pruning to prevent die-back. The lower limbs gradually fall to form a more obtuse angle with the stem as they become older, and it is necessary to prune them when planted in streets. It is, nevertheless, one of the most satisfactory street trees.

It has reached 60 feet with a crown spread of 40 feet.

For landscape purposes this is one of the outstanding trees because of its form and colour, and suitability to the climate.

It is propagated by seed and fruits well each year, although there are some variations in the crops from year to year. It flowers in September and acorns should be sown within a few months of falling, but they remain viable for much longer periods than the White Oaks.

The outstanding street planting of this species is Torrens Street, Braddon (Plate 14).

***Quercus pedunculata* Ehrh.**

English Oak

The long peduncle carrying the acorn makes it easy to distinguish this from all the other species grown (Plate 18).

Native to Europe and Western Asia, it is widely known as English Oak.

Not as well suited to the climate as some of the other species, it nevertheless grows moderately well, and there is one outstanding old tree by Duntroon House and another at the old Ginninderra homestead. These are considered to be about 100 years old. It does not stand the hot summers and the dry soils as well as some of the other species. It is apt to suffer from pests such as aphids and red spider more than other Oaks.

Slow growing, it nevertheless makes an excellent tree when well grown.

Has reached about 70 feet in 100 years, with a crown spread of about 112 feet.

Propagated by seed, it fruits in most years. Seed does not retain viability for long.

It can be seen in Macquarie Street, Barton, between Kings Avenue and Brisbane Avenue.

***Quercus pedunculata* var. *fastigiata* Loud.**

Columnar English Oak

This is a fastigate form of English Oak which differs only in the upright habit from the species. It is useful for planting in confined areas. Raised from seed. Almost all seedlings are fastigate.

There are two good specimens in front of the Drill Hall (Plate 17) and one also beside the Canberra Post Office, Queen Victoria Terrace.

***Quercus Suber* Linnaeus**

Cork Oak

Readily distinguished by the thick, corky, deeply furrowed bark.

Native to the Mediterranean regions both in southern Europe and North Africa, and also Asia Minor. A particularly important tree because it provides most of the world's cork supply which is obtained by stripping the outer bark in early summer. This sustains a large industry in Portugal, Spain, southern France, Morocco and Algeria. Cork Oak, when well grown, is a splendid tree with a wide spreading crown. It is evergreen and when not stripped has a very attractive grey furrowed bark. The foliage is somewhat lighter coloured than *Q. Ilex*, with which it sometimes occurs naturally.

There are some splendid trees in Canberra, where it is well suited to the climate if planted on well-drained soil. A useful ornamental tree.

It has reached about 50 feet in 30 years, with a crown spread of 43 feet. It prefers deep, sandy, well-drained soil and will not thrive on calcareous soils in its native habitat.

Propagated by seed, it must be raised in pots as it is difficult to transplant. Fruits every two or three years, but the fruit is edible and often it is hard to collect the crop because it is attractive to possums. A tree which will be more extensively planted.

There is an area of some 10 acres at Green Hills which was planted about 1923. From this cork has been stripped and tested commercially and found to be identical with cork imported from areas where it grows naturally.

There are some good trees in the Hospital grounds at Acton, and also at Duntroon.

Quercus Wizlizeni A.DC.

Interior Live Oak

A moderate sized, round-headed evergreen oak of the Sierra foothills in California.

It is distinguished by the small size of leaf, which is smaller than the European *Q. ilex*.

From its occurrence in California it should do well in Canberra, but it is a recent introduction and it is too early to say how it will thrive.

It is planted in Westbourne Woods.

CASUARINA (Rump.) Linnaeus

A genus principally Australian, but with one species, *C. equisetifolia*, widely distributed in littoral areas in the tropics, and a few other species also outside Australia, as in Sumatra. The genus is spread widely through considerably diverse habitats and ranges from a small shrub to a large tree. The species in the Australian Capital Territory are all dioecious, the male and female flowers being borne on separate plants.

Casuarina Cunninghamiana Miq.

River Oak

Distinguished from other Casuarinas by the small fruit, which is seldom more than $\frac{1}{2}$ inch in diameter.

Native from the southern border of New South Wales to Queensland, usually occupying the very distinctive river sandbank habitat. In places it is also found away from rivers on limestone outcrops. The wood is tough and had a reputation in the past as being valuable for such special uses as bullock yokes. It is also a good firewood. The tree is not especially long-lived, and big trees are frequently rotten with decay at the butt at 60-80 years of age. It is planted extensively overseas.

especially in South Africa and in Florida, where it is known as "Australian Pine". Superficially resembles a conifer. It is surprisingly drought-resistant when grown away from its normal habitat, and while it will apparently not endure waterlogged conditions, its roots will thrive in running water when growing on river banks.

Reaches about 80 feet in height with a crown spread of 50 feet.

It is a species which forms a transient community in the fixing of river banks and apparently finally is replaced by eucalypts. It is subject to various disorders when grown on dry sites, and is then a still shorter-lived tree. It is often infested with a mistletoe, *Amyema Cambagei* (Blakely) Danser, in this district. It is widespread, growing naturally on the Molonglo and Murrumbidgee Rivers.

Easily raised from seed. It will not transplant open-rooted. Flowers in March.

Can be seen naturally on the banks of the Murrumbidgee River and planted in Solander Place.

Casuarina Luehmanii R. T. Baker

Buloke

This species is distinguished by the size of the fruit, which is about $\frac{1}{2}$ inch in diameter.

It occurs widely in Victoria, especially in the north-west, and also the interior parts of New South Wales, Queensland and South Australia. A very restricted occurrence is found on the Molonglo River just above its junction with the Queanbeyan River in the Australian Capital Territory on a rocky site, and also on the Molonglo at Black Mountain near the Sullivan's Creek junction.

A small tree, not as decorative or fine in the branchlets as River Oak, but interesting botanically.

Reaches about 30 feet with a crown spread of 10 feet in the Australian Capital Territory, though it is a bigger tree under more suitable conditions where it is grown elsewhere.

Raised by seed, it is, as with the other species, somewhat difficult to transplant, so must be handled in pots.

There are natural trees in the Botanic Garden area.

Casuarina stricta Ait.

Drooping She-Oak

Recognized by the size of the fruit, which is generally over 1 inch in diameter.

Native to a wide area in temperate Australia and also Tasmania.

Occurs naturally on rocky hills in the Australian Capital Territory.

A small, round-headed tree with drooping habit, it reaches about 40 feet in height at the maximum, with a crown spread of about 30 feet.

It has so far had limited use, but the graceful tracery of its branchlets gives promise of some special landscape use, and it is likely to be of value in the future. The female trees in flower, while not very conspicuous, have bright red stigmas.

It is somewhat like Kurrajong in that its habitat is on hill-tops. When grown in the nursery and planted on low ground, it is subject in a limited degree to frost damage, but not to the same extent as Kurrajong. It is very valuable for firewood.

Propagated readily from seed, it does not transplant well. The seed remains viable for 30 years even when stored in an ordinary package at room temperatures.

It can be seen growing naturally near the top of Red Hill.

ULMUS Linnaeus

ELM

Widely distributed in the temperate northern hemisphere and much used as ornamental trees; some provide useful timber.

***Ulmus americana* Linnaeus**

White Elm American Elm

This species has a distinct branching habit described as vase-shaped, and is also distinguished when in flower by the long pedicels on which the flowers are borne.

It is native to the U.S.A. and Canada from the Rocky Mountains to the Atlantic. One of the most highly prized street trees in North America because of its particularly suitable shape to form an arch over the roadway. It requires some added water in summer in this climate, and does not make a good tree unless aided in this way. It suckers scarcely at all—and only when there has been disturbance to the roots. It colours a beautiful clear yellow in autumn, which makes it a valuable tree in the landscape. It is apt to break badly in the young stages following rapid growth unless it is carefully shaped to reduce this trouble.

In U.S.A. there is great concern over the spread of the Dutch elm disease in this species, the loss of which as street trees threatens to cause very severe financial burden on some moderate-sized towns. The disease depends for its spread on a bark beetle which is not in Australia.

It has reached 50 feet with a 40 feet crown spread.

A very useful tree, especially for autumn effects, and also because of its graceful branching habit.

Propagated by stem cuttings, it flowers in late August and generally produces seed.

There are good specimens in Northbourne Avenue between Sydney and Melbourne Buildings (Plate 19).

***Ulmus glabra* Huds.**

Wych Elm

This tree is distinguished by the shortly petioled leaves which are quite unequal at the base and scabrous above.

Native to north and central Europe and western Asia, this tree is reputed not to sucker from the roots. It is not as well adapted to conditions here as *U. procera*, but withstands the climate as well as *U. americana*. It has a distinctive branching habit

among the elms, being rather more round-headed than most. Unless well grown it loses its attractiveness in the Canberra climate rather more quickly than some of the other species and is suitable for limited use only. It is rather susceptible to the bark borer, *Cryptophaga*.

It has reached about 50 feet with a crown spread of 35 feet.

The tree is propagated by stem cuttings. It flowers in spring and fruits before coming into leaf.

There are a few trees mixed with American elm in Grant Crescent, Griffith, especially where it joins Murray Crescent.

***Ulmus hollandica* var. *vegeta* (Loud.) Rehd.**

Huntingdon Elm

This is distinguished readily by the very acute branching habit which is subject to splitting, and also the very oblique leaves.

It is a species of unknown horticultural origin in Europe.

Ulmus hollandica is likewise a hybrid of apparently unknown origin in Europe. It is a graceful species which must be very carefully pruned and lopped to prevent splitting at the forks of the branches, to which it is otherwise very subject. The splits also frequently allow the entry of water and substantial decay results unless the cavities are drained. "Slime flux", a disorder typical of Elms, is also severe on this species, apparently partly for the same reason.

Apart from these limitations it is a species which does well on the better soils in the area, and produces a satisfactory tree. Owing to the amount of attention it needs, however, it is not desirable to plant large quantities of it. It does not sucker vigorously, although with disturbance to the roots suckers do occur.

It has reached about 60 feet with a crown spread of 40 feet.

Propagated by stem cuttings; flowers at the beginning of September and is covered with fruit before it comes into leaf.

Brisbane Avenue is planted in the centre with these trees.

***Ulmus parvifolia* Jacq.**

Chinese Elm

Its very small leaves and autumn flowering habit make it quite distinct from other Elms.

Native to north and central China, Korea and Japan.

One of the outstanding ornamental trees in the city. A very graceful tree with drooping branches and an attractive bark mottled pale orange, brown and grey. The clone used in Canberra is distinct from others which are in cultivation in that no rough bark develops at the base, at least up to 30 years of age. It is deciduous, but for only a very short time, about two or three months, and in milder years carries a few green leaves through the winter. In milder climates as in Sydney it is evergreen. The rather long growth and drooping habit, coupled with the somewhat brittle wood, make it necessary to prune the tree somewhat carefully to prevent wind break as it

becomes older. There has been some uprooting or blowing over in very wet years, especially where the sites are wet. Pruning alleviates this trouble. It is rather difficult to get a straight stem before the main branches occur, and in the nursery this must be somewhat carefully cultivated.

Commonly reaches about 50 feet with a 50 feet crown spread.

A highly decorative tree of moderate size which is useful in the home garden as well as in streets and public areas.

Propagated by root cuttings, it flowers in late autumn and much of the fruit is apparently often damaged by frost. Some of the soft branch tips are often cut by frost also. The trouble is apparently worse in dry years than in moist years, although this may merely mean that the frosts are heavier in dry years. In the nursery it is often cut to the ground in the first year or two.

Pollen sheds about the end of May or the beginning of June, which contrasts with all other elm species grown in Canberra, which flower and shed pollen in spring.

When raised from seed the forms produced are quite inferior.

Good trees line Commonwealth and Kings Avenues along the footpath (Plate 21).

***Ulmus procera* Salisb.**

English Elm

Distinguished by the ovate leaves, the pubescent branches at times being somewhat corky.

Native to England, west and southern Europe.

A species very widely planted in England as a shade tree, where it grows to a very large size. Withstands the climate well and has been planted from the time of earliest settlement. Survives in very dry conditions without cultivation providing the soil is moderately deep. A large tree, it is liable to breakage of large limbs when very old. It suckers from the roots even without interference, but with root damage this is especially vigorous, which is often a disadvantage. It holds its leaves rather a long time compared with most of the other deciduous species and comes into leaf rather early. It flowers and fruits before leafing so that the appearance of new leaves is often falsely inferred for a week in advance of leafing by the development of fruits which, however, are much lighter in colour than the leaves.

There are some old trees in Canberra reaching a height of 100 feet with a spread of about 100 feet. It is somewhat subject to "slime flux" if there is any entry of water by old wounds or bad forks. A species well adapted to the climate, but of somewhat limited use because of the suckering habit.

There are many horticultural varieties of this species known under various names, of which a well known one is var. *Van Houttei* Schelle (Rehd.) in which in summer the leaves at the tips of the branches are a marked golden colour. U. "Turkestanica" may belong to this species too.

Generally propagated by cuttings or root suckers, it may also be grown from seed, but the seed loses viability very rapidly after ripening. It flowers about mid-August and is one of the earliest of the elms coming into flower.

There are very fine specimens at Government House and at Narellan House.

CELTIS Linnaeus

A group common in the northern hemisphere, especially in more temperate regions, and also in the tropics.

Planted widely as ornamental trees.

Celtis australis Linnaeus

Nettle Tree **Micocoulier**

Distinguished from the other species planted in Canberra by the strongly pubescent branches and the scabrous leaves, pubescent below. It has no well-known common name in English; Micocoulier is the French name.

Native to southern Europe, North Africa and western Asia.

An excellent street tree very well suited in most respects to the climate of Canberra, but suffering from die-back under some soil conditions. In fact, it is too often unhealthy to use without caution. It is particularly attractive in its winter state because of its branching habit and it has a distinctive smooth, somewhat fluted grey trunk which is an attractive feature.

It is a good street tree and is used quite extensively in the south of France and Italy for this purpose. It is a round-headed tree with very tough wood, is not much subject to breakage and does not sucker. It is recommended in Europe as a substitute for elm where the Dutch elm disease threatens ornamental plantings of elm. When the buds break in spring in Canberra, branches with flowers develop leaves too some days earlier than the remainder, and these remain as darker and heavier leaves which can be distinguished on the trees well into summer. It is a tree rather for streets and parks, where it is a good shade tree, but it has no notable character as a decorative tree, and therefore is not of particular use for more ornamental landscape treatment. It suffers severely from "wet feet".

It reaches about 50 feet with a crown spread of 40 feet.

Propagated by seed, it fruits well each year. The thin pulp of the fruit is edible and is liked and distributed by birds, so that seedlings are frequently found adjacent to the tree and also in other spots where birds perch. The fruit is ripe in late autumn. The seed retains its viability for some years.

Flowers in September. Sometimes only some branches have flowers and in this case they come into leaf first giving a patchy effect to the crown in early spring.

There are good specimens in Donaldson Street, Braddon, also in Eyre Street, Kingston.

Celtis occidentalis Linnaeus

Hackberry

Distinguished from the above species by the glabrous or nearly glabrous leaves.

Native to the eastern half of North America from Canada to Alabama. Slower-growing tree than *C. australis*; more intricately branched and not so attractive in winter. Rather more delicate in leaf, and turning a very clear yellow in autumn. It is not sufficiently well adapted to the climate nor sufficiently fast growing to be widely planted, but its autumn colouring makes it of special value.

It has reached about 40 feet with a crown spread of 35 feet in 30 years.

Propagated by seed, it fruits in most years and is easily raised from seed. Flowers in September a little later than *C. australis*.

There are good specimens at Riverside and beside the Girl Guides' Hall, near Murray Crescent and Flinders Way.

ZELKOVA Spack

A genus of deciduous trees in eastern and western Asia.

Zelkova serrata (Thunb.) Mak.

Keyaki

An elm-like tree native to Japan where it is planted as an ornamental.

The branching habit is graceful and upright. The sharply serrate leaves with acuminate teeth are a distinctive feature.

It has been recommended overseas because of its similarity to elm but freedom from some diseases of elm. It does not stand dry conditions well but can be used in favorable places.

There is a young tree in Telopea Park near the south-western end (Plate 20).

MACLURA Nutt.

A small genus of American trees related botanically to mulberry.

Maclura pomifera (Raf.) Schneid.

Osage-Orange

This species is distinguished by the large globose fruits. It has white latex when the twigs or fruit are broken. It is native to Arkansas, Oklahoma and Texas. It is a spiny tree which grows well but is somewhat scraggy. It is a novelty because of the peculiar large fruit. The leaves turn a clear yellow in autumn.

It has reached only 30 feet in 30 years. It endures hard sites very well.

The tree is of interest because it is one of the species which provided some American Indians with wood for bows.

Propagated by seed, it fruits sparingly in most years.

There are several trees in Westbourne Woods.

MORUS Linnaeus

MULBERRY

Deciduous trees or shrubs known widely because of the fruit.

Morus alba Linnaeus**White Mulberry**

A tree comparatively recently introduced to Canberra and not ordinarily cultivated as its fruit, though edible, is not valued as highly as black mulberry which is occasionally grown as a fruit tree.

White mulberry is a medium-sized, round-headed, deciduous tree. It will probably reach 50 feet with a 35 feet crown spread.

It is distinguished apart from the fruit by the irregularly lobed leaves especially when young.

A rapid grower when young and in fertile conditions with plenty of water. It colours a good clear yellow in autumn.

Native to China, it is the chief source of food for the silkworm.

The timber is widely used for wooden ploughs in the Middle East. Propagated by seed. It is a useful deciduous species.

Trees are planted in Buxton Street, Deakin.

GREVILLEA R.Br.

A large genus confined to Australia, principally shrubs but containing some trees.

Grevillea robusta Cunn.**Silky Oak**

Distinguished by the bipinnatifid leaves, orange flowers and the follicle fruit.

Native to the rain forests of northern New South Wales and Queensland. A remarkable species, widely planted in many parts of the world and also in Australia as an ornamental tree. Although its habitat is the wet coastal rain forest, it survives in dry inland conditions, and also in the cold conditions of Canberra. In severe winters it is sometimes completely defoliated by frost, but nevertheless still lives. The form of the tree, when grown under either cold or dry conditions, differs from that which is usual in its natural habitat. It is apt to develop dead wood in the crown after comparatively few years, and must be looked after carefully in Canberra to preserve a satisfactory appearance.

It is widely planted in other parts of the world and, for example, is used as a cover crop for tea in Ceylon. Its flowers are a rich orange colour born in dense racemes, and in flower it is most attractive. The foliage is also distinctive, with a fern-like habit.

It is used to a limited extent as a street tree, but is better reserved for a specimen tree in suitable situations, particularly where frost intensity is likely to be lessened. It is not sufficiently well suited to the climate to be recommended for extensive planting.

Fruits generally every two or three years and gives a fair crop of viable seed. It is easy to propagate by seed, but cannot be easily transplanted open rooted and therefore is raised in pots.

Has reached about 50 feet. Flowers in December.

It is planted in Baudin Street, Forrest.

TILIA Linnaeus

LINDEN or LIME

Deciduous trees widespread in the temperate parts of the Northern Hemisphere.

Tilia cordata Mill.

Small Leaved European Linden

A deciduous tree readily distinguished by the asymmetrical bud, large ligulate bract adnate to the peduncle and abruptly acuminate leaf.

One of the most widely planted street trees in the northern half of Europe but not able to withstand the dry conditions here satisfactorily.

It is a successful tree only in favoured spots in Canberra, and then is more of a novelty than of much landscape use.

It has reached about 25 feet and 15 feet spread in 40 years.

Propagated by seed; flowers in December.

There are old trees at Duntroon and a specimen is planted in the grounds of Lawley House, at the corner of Young and Darling Streets.

BRACHYCHITON Schott. and Endl.

This genus is confined to Australia. It is closely related to the genus *Sterculia*, which is principally tropical.

Brachychiton populneum R.Br.

Kurrajong

Widely known because of the distinctive follicles, the thick almost "Bottle Tree"-like green stem and the dense crown.

Native to eastern Australia from South Australia to Victoria and Queensland, extending into quite dry areas in New South Wales and Queensland. It is important as top-feed for stock in these areas and is widely cut in drought periods.

A very handsome evergreen tree with a dense head, its flowers are also attractive but are not especially showy. Its bright green foliage contrasts strongly with the colour of the other species native to the areas in which it grows. It is commonly found naturally on rocky outcrops in the Canberra district. It has the habit of shedding its branches naturally, and this is increased in drought periods. It is a slow grower but can be transplanted as a big tree very simply by preserving only the long tap root and lopping the crown. This cannot be carried out in winter as apparently in the Canberra climate the effect of cold weather on the roots is fatal. It may be transplanted throughout the summer, but probably it is most successfully

done in the middle or late spring. The juvenile foliage is markedly different from the mature foliage, often being trilobed in the former case, whereas the mature leaves are generally acuminate-ovate and entire.

Some trees fruit heavily and when carrying a large crop of follicles the crown is apt to be thin. There is considerable variation in the tree as raised from seed, some forms having much more compact crowns than others. It stands in sharp contrast with other native species also by the often quite formal shape of the crown. It is at the edge of its geographic range because of cold conditions in Canberra and in some years, especially in low lying places in the city area, it is heavily cut by frost and quite large branches are subsequently shed; however, it always breaks away freely from buds during the following growing season.

A very useful tree for some landscape effects.

Propagated by seed, it fruits somewhat irregularly, but it is generally possible to collect seed from a few trees each year. Flowers about November.

Has reached about 40 feet with a crown spread of 30 feet. Grows rather slowly, often not more than about 1 foot per year in height.

It is planted in Tasmania Circle.

FIRMIANA Marsili.

A small genus mainly in E. Asia. Deciduous trees.

Firmiana simplex (L.) W. F. Wright

Phoenix Tree

A recent introduction. A deciduous tree with a trunk rather like Kurrajong. The young foliage is a bright pink in spring. Flowers golden yellow. Planted in Allen Street.

AILANTHUS Desf.

A genus of few species in southern Asia, and one or two native to tropical northern Australia.

Ailanthus altissima (Mill) Swingle

Tree of Heaven

Commonly known as *A. glandulosa* Desf., this tree can be recognized by the long alternate pinnate leaves.

It is native to China.

A tree long planted ornamentally in other countries. It is notorious as being the host of Chestnut Blight in north-eastern U.S.A. and as such is responsible for the introduction of this fungus pest which has practically eliminated American Chestnut from the deciduous forests of the eastern parts of the U.S.A.

It has been planted occasionally for a long time in the Australian Capital Territory where it thrives well, even to the extent of sometimes being considered a noxious weed. It is objected to because of the vigorous suckering habit from the roots, but is

PLATE 9.

Populus nigra var. *italica* (*Lombardy Poplar*) in *Telopea Park*, about 35 years old. These trees are male, producing pollen-bearing flowers only.



PLATE 10.

Populus trichocarpa var. *Maximowiczii* (*Androskoggin Poplar*), a hybrid produced (about 25 years ago) in the United States between two species of *Balsam Poplar*. This clump is in *Westbourne Woods* and is about 12 years old.





PLATE 11.

*Salix (Willow) as usually grown in the Nursery. Growth is very rapid at early stages and in the specimen shown (*Salix Humboldtiana* from South America) it grew twelve feet from cuttings in the first year. This tree has not yet been planted commonly in Canberra. It grows naturally in Argentina and other parts of South America.*

PLATE 12.

Salix babylonica (Weeping Willow) on the Golf Course at Acton. This tree will be inundated when the Lake is filled. It is one of the earliest and most common introductions to Australia.



PLATE 13.

A branch of Quercus palustris (Pin Oak) one of the Black Oaks. Note the fine bristle at the tip of each of the lobes, and the small squat acorn.



PLATE 14.

Quercus palustris (Pin Oak) a fine street tree in Torrens Street. There are no overhead wires to impair the growth of the tree in this situation. Those on the left are a little younger than those on the right which are about 35 years old.



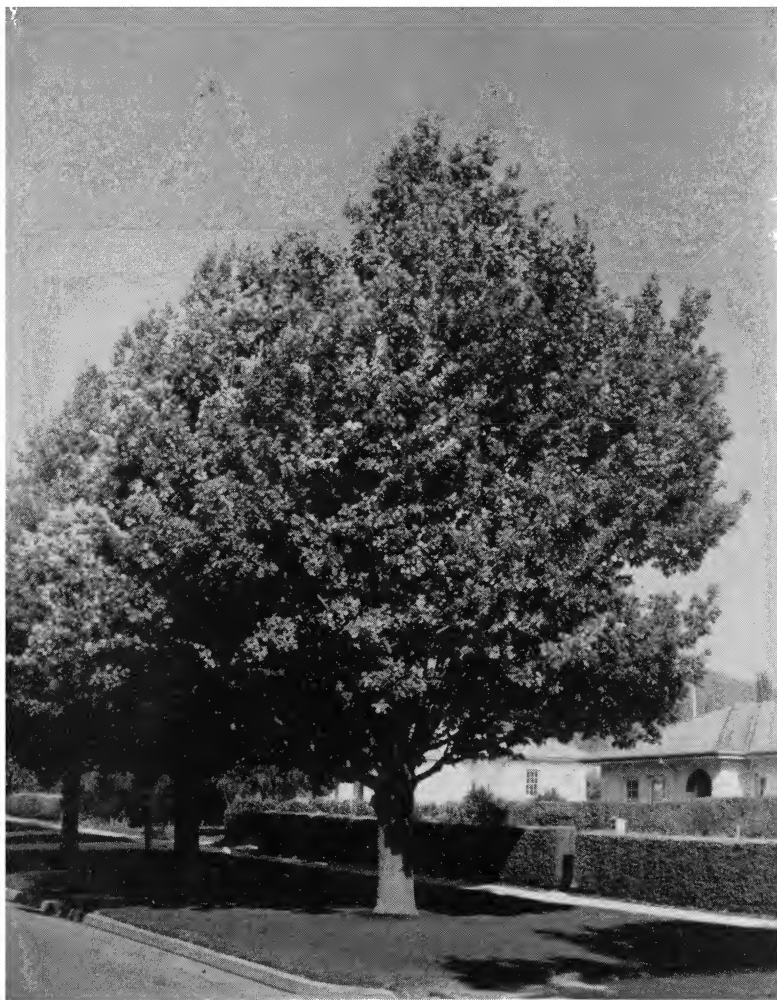


PLATE 15.

Quercus lusitanica (*Spanish Oak*) in Suttor Street, Ainslie. A fine, dense-crowned tree, rather slow growing. This was planted about 1935.



PLATE 16.

Quercus macrocarpa (*Mossy Cup Oak*) in National Circuit at King's Avenue junction. Many oaks have this wide spreading form.

PLATE 17.

Quercus pedunculata var. *fastigiata* (*Upright English Oak*). The pyramidal form occurs in many trees and is usually preserved by selection of seedlings, as is the case with this plant. Such forms usually do not survive under natural conditions but they are often useful for planting where a reduced crown spread is necessary.

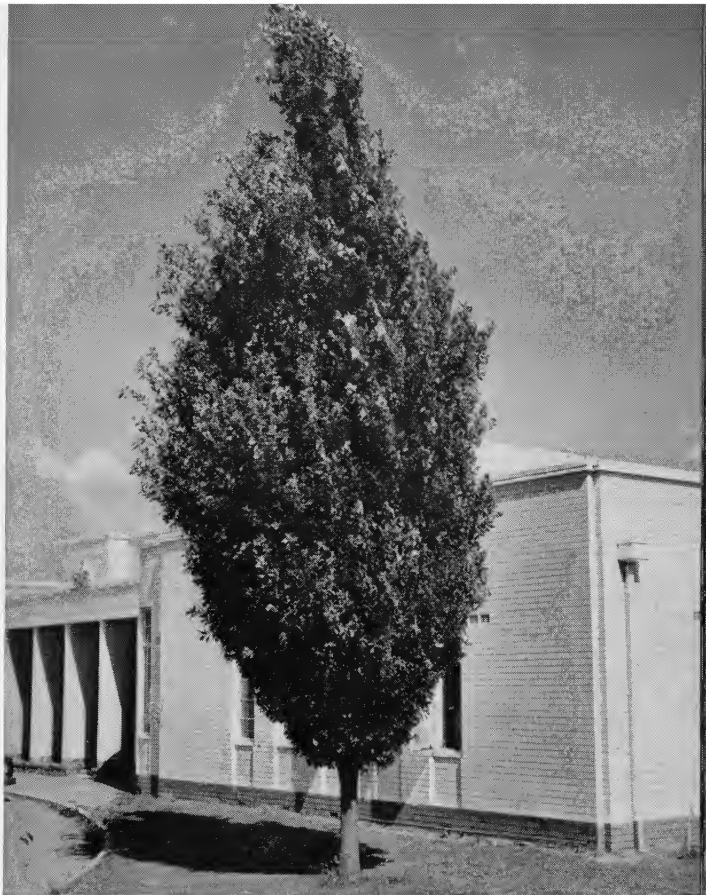


PLATE 18.

A branch of *Quercus pedunculata* (*English Oak*) showing the acorn, the cup and the long peduncle characteristic of the species. Note the rounded lobes of the leaves.





PLATE 19 (left).

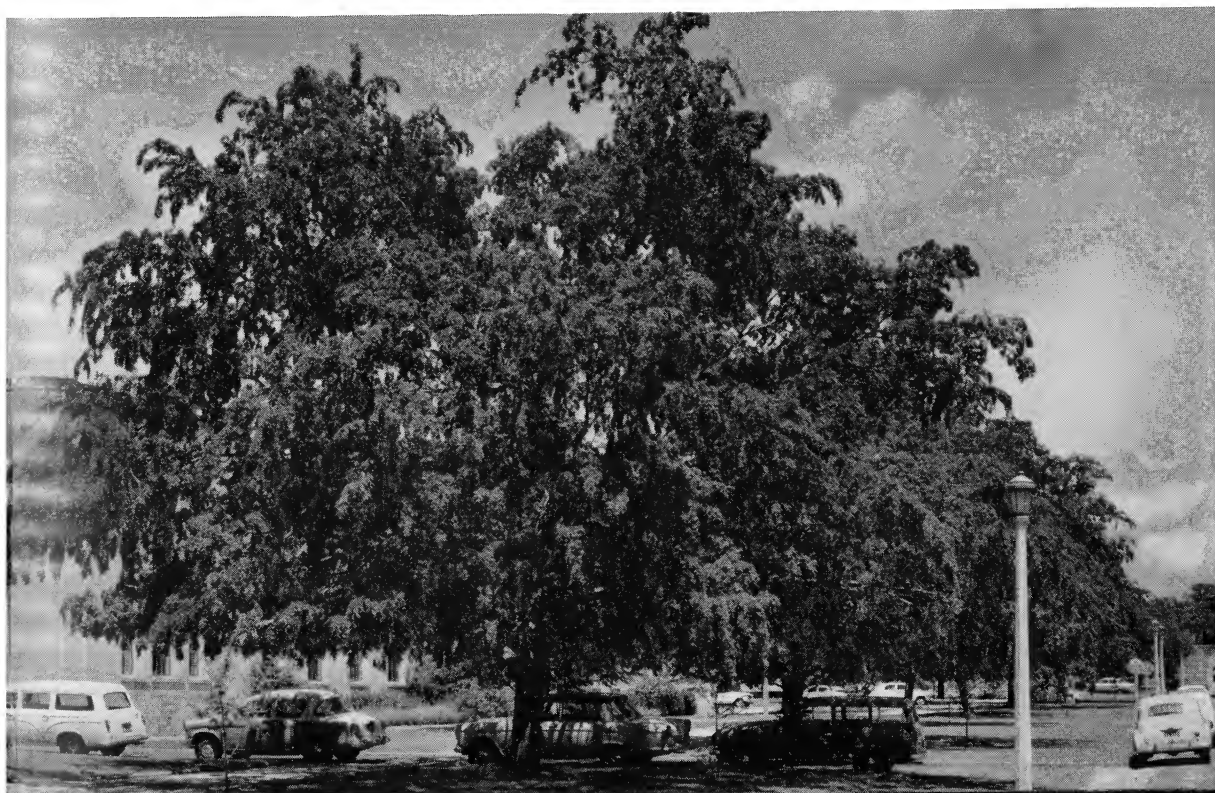
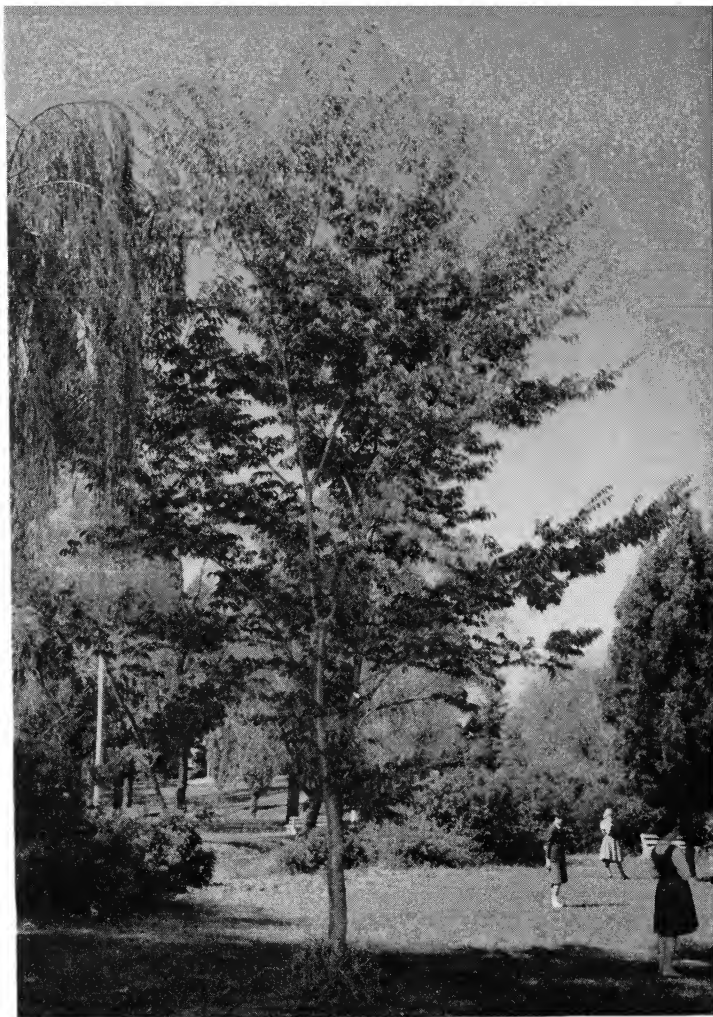
Ulmus americana (*American Elm*)
in Northbourne Avenue at Civic
Centre. This is one of the most
graceful of trees in its branching
habit. About 35 years old.

PLATE 20.

Zelkova serrata (*Keyaki*) at
Telopea Park. A recent introduc-
tion, elm-like in its appearance,
but with a still more graceful
habit.

PLATE 21.

Ulmus parvifolia (*Chinese Elm*).
A horticultural form propagated
by root cuttings which is planted
widely in Canberra.



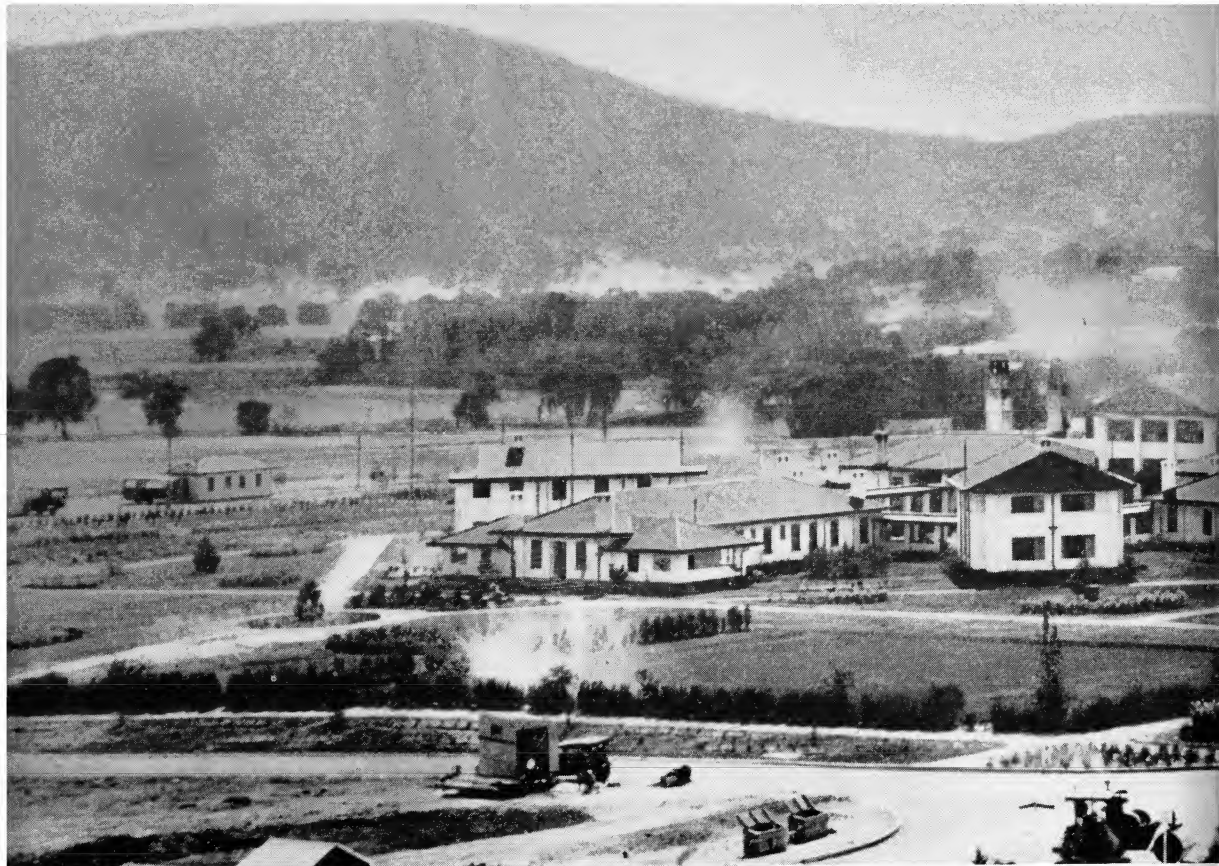


PLATE 22.—BLACK MOUNTAIN FROM COMMONWEALTH AVENUE.





Above—1927.

Below—1962.





PLATE 23.

Betula pendula (*Silver Birch*).
One of the most attractive and graceful trees of Canberra. It is especially useful in gardens and is occasionally used in streets (as above in Mitchell Street, Griffith).

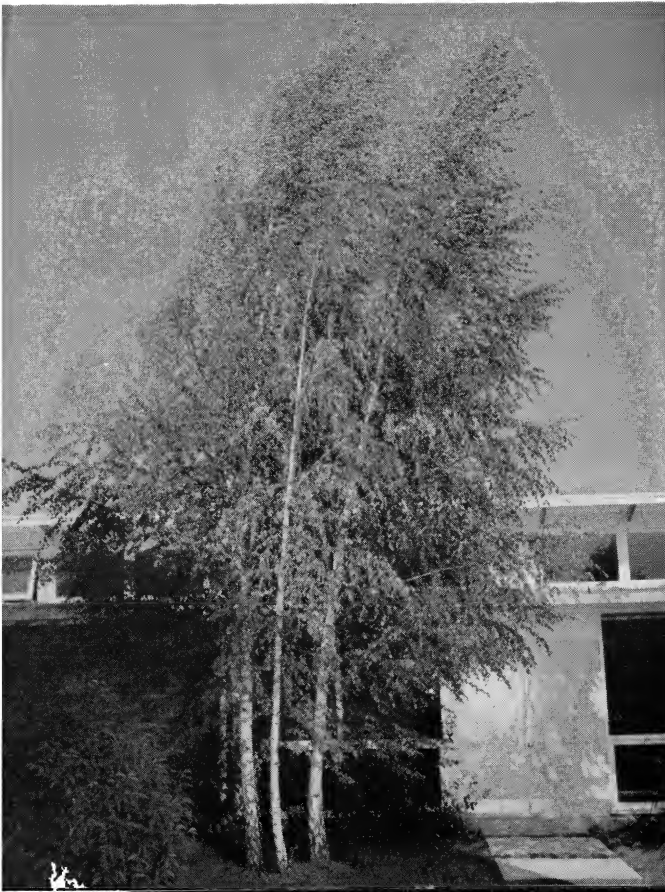


PLATE 24.

Betula pendula (*Silver Birch*).
In the courtyard of the Griffith Infants' School.

PLATE 25

Platanus orientalis (*Oriental Plane*) widely known as *Chinar*, growing at *Green Square, Kingston*. The seed from which this tree was raised was introduced from the island of *Cyprus*, where this form of *Oriental Plane* grows naturally in water courses in the foothills of the mountains.



PLATE 26

Platanus orientalis (*Oriental Plane*). The deeply lobed palmate leaves characteristic of the *Cyprus Plane*.





PLATE 27.

Sophora japonica (*Japanese Pagoda Tree*) at the Drill Hall, Kingsley Street, Turner.

PLATE 28.

Sophora japonica (*Pagoda Tree*) in flower. Note the pinnately divided foliage and the large panicle of cream flowers.



PLATE 29.

Koelreuteria paniculata
(*Golden Rain Tree*). A
Chinese species with a dis-
tinct habit. Useful for
planting where a small
deciduous tree is required.



PLATE 30.

Albizia julibrissin (*Silk Tree*) at the shopping
area, Stuart Street, Griffith. The graceful, feathery
foliage and spreading habit
of this tree make it very
useful as a garden speci-
men.



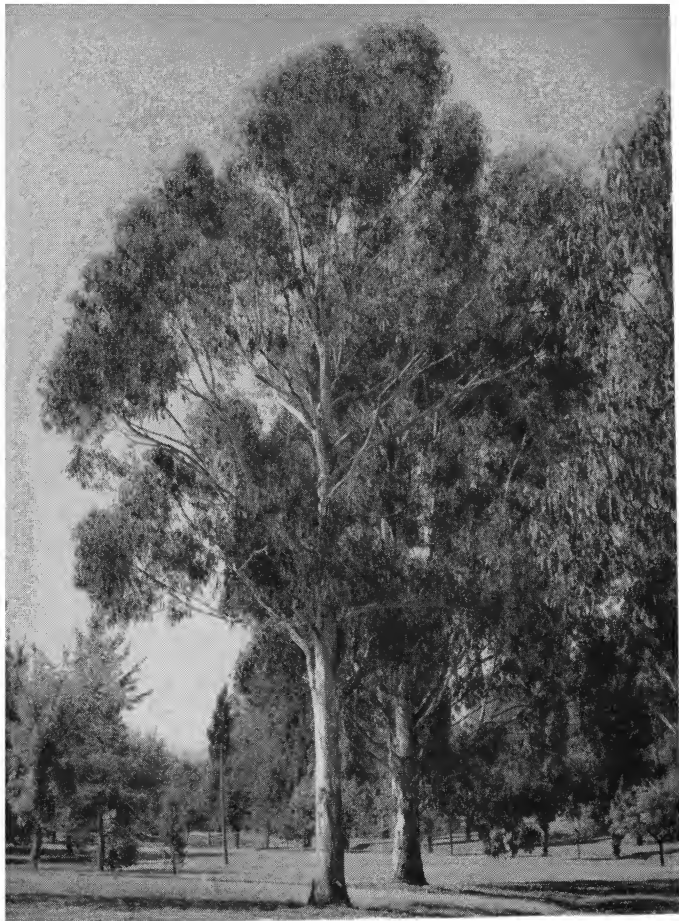


PLATE 31.

Eucalyptus bicostata (Eurabbie).
A 35-year-old tree planted in
Telopea Park.



PLATE 32.

Eucalyptus bicostata (Eurabbie).
A leafy shoot with flower buds.
Note the characteristic arrangement
of the buds in groups of three.

PLATE 33.

Eucalyptus cinerea (*Argyle Apple*).
An unusual form of Eucalyptus in which the juvenile-type leaves are preserved when the tree is mature.



PLATE 34.

Leaves and buds of Eucalyptus cinerea (*Argyle Apple*).

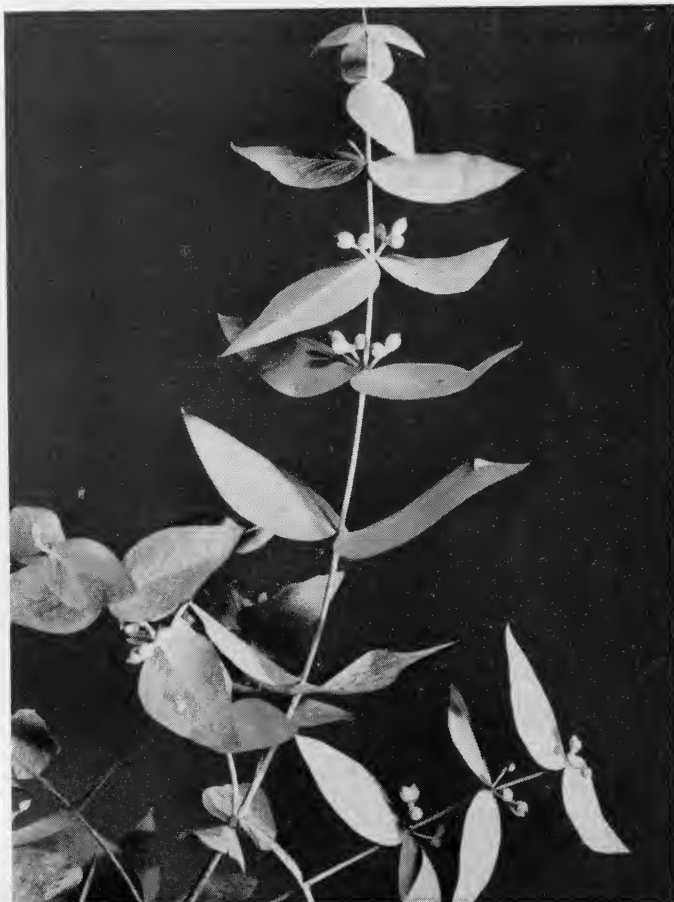




PLATE 35.

Eucalyptus macrorrhyncha
(Red Stringy Bark)
planted in Westbourne
Woods. A tree which is
common in the dry sclero-
phyll forest of Black
Mountain.



PLATE 36.

Eucalyptus pauciflora
(Snow Gum). A striking
Australia native tree which
has found a place in
ornamental plantings.

a handsome tree with its long pinnate leaves, and well grown has a very attractive appearance. There are some old trees in the district. In some parts of New South Wales it is regarded as a noxious weed.

It reaches about 60 feet with a crown spread of about 40 feet.

It must be used with care because of the vigorous suckering habit.

Propagated by root suckers.

The colour of the fruit in autumn is sometimes a bright red as it hangs from the tree.

An old tree remains on Telopea Parkway near Brisbane Avenue.

MELIA L.

A small genus found naturally in South-East Asia and Australia.

Chinaberry
White Cedar
Persian Lilac

Melia Azedarach L.

A deciduous round-headed tree reaching about 30 feet with a 30 feet crown spread.

The pale mauve panicles of flowers, yellow fruit and bi-pinnate leaves distinguish it readily from all other species except *Melia dubia*. This latter species, native to Australia, is not frost hardy in Canberra, but it is very similar and has been widely known as *Melia Azedarach* var. *australasia*.

The tree though native to South-East Asia is widely planted in other parts of Asia. The Canberra trees were introduced from Mosul, Iraq.

Propagated by seed, flowers early summer.

Planted in Babbage Crescent, Griffith.

PISTACIA L.

Deciduous or evergreen trees and shrubs found in Eurasia and America.

Pistacia chinensis Bge.

A small deciduous tree with pinnate alternate leaves by which it may be distinguished readily from *Fraxinus*. The winter bud scales are prominent and the crushed leaves have an odour characteristic of the family Anacardiaceae to which it belongs.

Another species, *Pistacia vera* cultivated in Asia, is the source of pistachio nuts.

A comparatively recent introduction to Canberra it is dioecious and has not yet seeded here.

It has reached about 25 feet with a crown spread of 15 feet.

It is valued for the brilliant red autumn colouring of the foliage before leaf shedding.

Plants are raised from seed which must be brought into Canberra. Seedlings show some variation and are not uniformly good in autumn colouring.

There is a tree in the grounds of the Hotel Canberra near the front entrance.

RHUS Linnaeus

SUMAC

A genus widely distributed in subtropical and temperate regions. The ornamental forms are generally shrubs, many having bright autumn colouring.

Rhus succedanea Linnaeus

Wax Tree

Distinguished by the pinnate brilliantly red-coloured autumn leaves.

Native to China and Japan. It makes only a shrub or small tree in this district, but is valued because of its autumn colour. Many are reputed to be allergic to the tree and many other species of the genus, including the well-known climber, Poison Ivy—*Rhus toxicodendron* of U.S.A.—are responsible for evident allergies.

It seldom exceeds 30 feet.

Propagated by seed, it fruits occasionally. It is seldom planted.

There are a few in private gardens as, for example, Currie Crescent, Kingston.

SCHINUS L.

An American genus growing from Mexico to Argentina.

Schinus Molle Linnaeus

Pepper Tree

Distinguished by the pinnate foliage and small pink globular fruit which occurs in clusters.

A very widely known tree because of its suitability in arid areas where it is one of the most frequently planted shade trees.

Native to Peru.

Not well suited to Canberra conditions, where it is frequently cut by frost and at times completely defoliated in winter, nevertheless it recovers and makes a moderate-sized tree up to about 35-40 feet. A round-headed tree, when well grown it forms a very good shade tree with graceful habit. It suffers through no fault of its own, in that it is one of the few trees planted in many arid localities and is therefore thought monotonous by many who know it as the tree of every inland railway siding. It does not look thrifty in Canberra and cannot be recommended for planting because of its unsuitability to the winter climate.

Propagated by seed, it generally carries fruit every year.

There are some old trees on Liversidge Street near Lennox House.

KOELREUTERIA Laxm.

Four species of deciduous trees in eastern Asia.

Koelreuteria paniculata Laxm.

Golden Rain Tree China Tree

Native to China, Korea and Japan. Distinguished by the pinnate or partly bipinnate irregularly serrate leaves.

The tree is apparently suited to Canberra, although there are no very old planted specimens. It grows slowly, but makes a small round-headed tree of graceful habit and with showy golden-yellow flowers in summer. It has succeeded as a street tree in Adelaide and gives promise of being satisfactory for wider use in Canberra. The autumn foliage is a good orange-yellow.

Has so far reached only 20 feet with a crown spread of 10 feet (Plate 29).

Propagated by seed. Fruits in most years and is easily raised from seed.

Planted in Lang Street, Ainslie, and Carstensz Street, Griffith.

ACER Linnaeus

MAPLE

A large genus widely distributed in the Northern Hemisphere. One of the distinguishing features, apart from the shape of the leaves and winged fruit, is the opposite nature of buds and leaves.

Acer Negundo Linnaeus

Box Elder

Easily distinguished from the other species by the pinnate leaves.

Widely distributed throughout North America, reaching arid areas on the great plains, and also in California.

A species well adapted to this climate, it thrives with little assistance in cultivation. It grows quickly when young; side branches tend to compete with the leader so that well-judged pruning is necessary to maintain good form. Nevertheless, it is a satisfactory shade tree and apparently free from most of the pests it endures in its native habitat. It gives a fairly good yellow colouring in autumn, and some individuals have a touch of orange.

It is useful to a limited extent as a small street tree and of value especially for quick growth in gardens. It will not thrive in shallow soils.

Reaches about 50 feet with a crown spread of 40 feet.

Propagated by seed, it benefits by refrigeration before sowing. It fruits generally every year, producing good crops of viable seed.

There are several horticultural forms especially with variegated foliage, such as var. *variegatum*, which have been used with advantage in particular cases. It is a street tree in Bannister Gardens.

Acer platanoides Linnaeus

Norway Maple

Distinguished from *A. Pseudoplatanus* by the finely pointed lobes to the leaves, the corymbose inflorescence, and red winter buds.

It is widely distributed in Europe and the Caucasus and much cultivated. There are many horticultural varieties.

It does moderately well if it receives supplementary water supply. In the hotter summers the leaves suffer some browning off, and the trunk, if exposed or leaning at an angle, is subject to sun scorch.

It makes a good round-headed shade tree, but does not compare with the growth of the species in its natural habitat. It colours a bright yellow with tinges of orange in autumn, which makes it well worthy of planting in suitable places. The light green of the foliage in summer is also attractive. Its general unsuitability for the climate makes its use limited.

It has reached about 30 feet with a crown spread of 20 feet.

Propagated by seed, which responds well to refrigeration treatment. It fruits in most years. Flowers at the end of September.

There is a good tree opposite the Hotel Canberra in King George Terrace.

Acer Pseudoplatanus Linnaeus

Sycamore Maple

This species is distinguished as mentioned under *A. platanoides*. The winter buds are yellow.

Native to Europe and western Asia, it has been long cultivated.

Less suitable than *A. platanoides* for this climate, it is still more subject to leaf scorch in summer and to dying of the branches in dry seasons, which, except perhaps under the most suitable conditions of soil and moisture, it cannot overcome.

It has been planted a little, but is quickly being eliminated and at the best is a short-lived species. It does not colour well in autumn, so there is little reason for persevering with it in view of its general unsuitability.

Has reached about 35 feet with a crown spread of 20 feet.

Propagated by seed, which responds to refrigeration treatment. It fruits in most years.

There are trees in Westbourne Woods.

Acer campestre Linnaeus

Hedge Maple

Distinguished by the smaller lobes of the leaves and the corky winged branches.

One of the common maples of England and Europe, it needs plenty of water to grow well in Canberra and there are few good specimens. It tends to produce multiple stems. Colours a little in autumn a clear yellow.

Propagated by seed. It fruits readily in Canberra.

Planted in Westbourne Woods.

AESCULUS Linnaeus

A genus found in North America, south-eastern Europe, eastern Asia and India. Ornamental trees principally grown for their flowers and shade.

Aesculus Hippocastanum Linnaeus

Horse Chestnut

Distinguished readily by the digitate arrangement of the leaflets and the large spiny fruit.

Widely planted in Europe from Sweden to Spain, it is one of the outstanding trees for shade tree use in cities being of value for the handsome appearance of the foliage, the fine masses of flowers produced in spring and its general winter form. One of the outstanding trees of the Parisian boulevards. It is doubtful if it is a native of Europe except perhaps the Balkan Peninsula, although under city conditions it thrives in climates widely different from its habitat. It is one of the outstanding shade trees also of southern England.

The form with pink flowers (known sometimes as *A. carnea*) is commonly planted and produces some very striking effects. There are a few old specimens in the district which grow slowly but have made reasonably good trees. The general conditions seem to be rather dry for this species, although it has not been sufficiently widely tried to form final conclusions. It seems to need rather better soils for satisfactory growth.

It has reached about 40 feet with a crown spread of 30 feet.

Fruits every two or three years with a moderate crop. The seed must be sown within a short time after ripening but under these circumstances is easy to raise. Suffers some burning of the foliage in summer.

Flowers in spring. There is an old tree at Duntroon near the Officers' Mess, also on the south-eastern side of the Kingston Flats, Canberra Avenue.

ILEX Linnaeus

HOLLY

A large and widely spread genus of evergreen or deciduous species.

Ilex Aquifolium Linnaeus

English Holly

A widely known shrub or small tree, this is easily recognized because of the leaf shape and its use for Christmas decoration. Native to a wide area in southern

Europe, North Africa and western Asia to China and cultivated since ancient times. The male and female flowers are borne separately on different plants so that it is necessary to be sure to obtain the female if berries are required. The foliage is dark lustrous green and attractive. It grows slowly and makes at most a small tree; generally it is seen as a shrub. It must be pruned carefully because of its slow growth but will make a hedge. The traditional use for Christmas also makes it a widely planted species.

It reaches about 25 feet with a crown spread of 10 feet.

It is propagated by seed and germination is improved by stratification. Fruits generally every year.

There is a specimen near the entrance to the Hotel Canberra.

CERCIDIPHYLLUM Sieb. and Zuccarini

A monotypic genus confined to E. Asia.

Cercidiphyllum japonicum Sieb and Zuccarini

Katsura

A moderate sized tree somewhat reminiscent of *Cercis* in the leaf. Brilliant red in autumn. A relatively recent introduction. Planted in Pullen Street.

LIQUIDAMBAR Linnaeus

A genus of a few species in north and central America, western and eastern Asia.

Liquidambar styraciflua Linnaeus

**Sweet Gum
Liquidambar**

Distinguished by the palmate leaves which are alternate, unlike the maples which are opposite. The corky ridges on the branches are also conspicuous.

Native to the Atlantic coast of North America south of Connecticut to Texas, and also to the mid-west in Illinois and Missouri.

An outstandingly beautiful tree because of its autumn colouring. It is a rather narrow-crowned, shaft-like tree which grows well. It has not yet had extensive trials, but seems hardy and adaptable. It is not very fast growing and there is some variation from tree to tree in the colour in autumn.

It has so far reached about 30 feet in height with a crown spread of 12 feet.

As a specimen tree and for special landscape effects where autumn colour is desired, it will be a particularly useful tree. It also thrives in paved areas.

Propagated by seed or root cuttings, it is old enough in Canberra to have fruited only recently.

In Franklin and Bougainville Streets in front of the Manuka Shops, also Knibbs Street, Turner.

PARROTIA C. A. Mey.

A monotypic genus related to *Liquidambar*.

Parrotia persica C. A. Mey.

A small tree as yet but little planted, with oval alternate leaves.

It is native to Persia. A rather shrubby tree, but of outstanding value because of the particularly beautiful autumn colours produced, ranging from scarlet to orange and yellow on the one tree. It is slow growing but apparently hardy and able to withstand the climate if planted on reasonably good soil, but it colours well only if on a favorable site.

So far only about 20 feet high and with a 12 feet spread, it is one of the species that may be used in restricted areas in the future.

There is a small tree in front of the nurses' quarters at the Hospital.

PLATANUS Linnaeus

PLANE

Distinguished by the palmate, alternately placed leaves and the globular pendulous fruits.

Ornamental trees widely planted which endure polluted atmosphere well and withstand severe pruning.

Platanus acerifolia (Ait.) Willd.

London Plane

This is a hybrid between *P. occidentalis* and *P. orientalis*. It is one of the outstanding trees in the world for city planting, and is found in a very wide range of climates in many cities.

Its origin has probably been in more than one European locality, one of which is thought to have been perhaps in the Botanic Garden at Oxford University, probably before 1700.

Very widely planted in Australia and of great value. It suffers some burning of the leaves in dry situations in hot summers but if the soil is adequate this does not occur. It does not thrive on shallow soils, and although it does not die in such situations it remains unthrifty. There is considerable variation in types which have been raised from seed and generally it is readily propagated vegetatively by cuttings, although the capacity to strike differs from seedling to seedling.

A handsome tree with an attractive exfoliating bark and one of the best of shade trees. It may be cut back and responds vigorously to such treatment, and therefore has wide use where overhead wires are a problem.

In London parks it is one of the outstanding trees.

There are some fine trees in Canberra but they are all rather young; they have reached about 50 feet with a crown spread of 30 feet.

A tree of particular value for street planting and formal park planting rather than as an occasional shade tree in gardens.

The tree suffers considerably from plane anthracnose, a fungus disease which attacks the small branches and shows up conspicuously on new leaves in early spring, when with bad infestation some of them brown off and die. The trouble may be reduced by heavy pruning and the elimination of weak wood with the stimulation of strong, new vigorous shoots. These are free from the disease and the tree remains so for a considerable time. Spraying at bud burst appears to aid control also.

Trees have almost been killed by the disease but with heavy pruning have made a good recovery. *P. occidentalis* and other American forms are apparently much more susceptible than the Asiatic species and European hybrids, and it has been suggested that *P. orientalis* is practically resistant to the disease, but adequate tests have still to be made with this species.

The Lawns at Manuka are planted with this tree, also Arthur Circle, Forrest, and Cowper Street, Ainslie.

Platanus orientalis Linnaeus

Chinar Oriental Plane

Distinguished by the fruiting heads being in racemes of three or more and the more deeply lobed leaves. It is widely known in Asia and was introduced to Kashmir by the Moguls.

Native to south-eastern Europe and western Asia, where it has been planted as a shade tree since ancient times and is often referred to in the classics. In its native habitat it is a magnificent shade tree and is found along stream banks or at springs, as in the Rowanduz Gorge in Iraq. Some of these seedlings colour a little in autumn. Its general characteristics are as for *P. acerifolia*.

Propagated by cuttings. It has now commenced fruiting, recently has been raised from seed.

Specimens of this species have been introduced only in the last few years. One form from seed from Kashmir is in front of the Forestry School students' quarters. The form from Cyprus, with even more deeply cut leaves (Plate 26) has been planted in the Green Square, Kingston (Plate 25), and on the inside of London Circuit.

Platanus occidentalis Linnaeus

Buttonwood

This species is distinguished by the almost exclusively solitary fruiting heads. There are but rarely two on the one peduncle.

Native to the eastern part of the U.S.A. and Canada.

It is not very well suited to the climate and suffers very badly from anthracnose. Not a satisfactory tree to grow in comparison with London Plane or Oriental Plane.

Propagated by cuttings, it also fruits in Canberra but is not to be recommended for planting. There are trees at the south-western end of Telopea Park.

SORBUS Linnaeus

Deciduous trees of the Rose family, widely distributed through the northern hemisphere and containing some very attractive ornamental species.

A group which is likely to provide more material for introduction to Canberra.

Rowan

Sorbus aucuparia Linnaeus

Mountain Ash

This is distinguished from the second *Sorbus* species by the brightly coloured and much smaller fruits. The name *aucuparia* relates to its use in snaring birds.

It is native to Europe, western Asia and Siberia, and by traditional belief in Scotland, Wales and elsewhere confers protection from misfortune.

The tree is not suited to Canberra, which is too dry and hot for it in summer. It will thrive for a few years when young and when supplied with water and cultivated, but unless carefully tended in a garden it will not thrive later. It forms a many-branched shrub or small tree and gives a very striking effect with its clusters of bright red to orange fruits. There is a form also with yellow fruits.

Of limited use because of its unsuitability to the climate, it has reached about 25 feet with a 15 feet crown spread and colours a beautiful red in autumn if it has sufficient water during the summer to retain a good crown of leaves.

It is propagated by budding or grafting, usually on to *Crataegus monogyna* stock. If raised from seed it produces variable progeny often with indifferent berry colour. One form which is nearly evergreen and with much reduced leaves has been raised from seed from one tree.

There are trees in Edinburgh Avenue.

Sorbus domestica Linnaeus

Service Tree

This tree is also known as *Pyrus sorbus*.

It is distinguished by the viscid buds and pinnate leaves alternately placed.

Native to southern Europe, North Africa and western Asia, it has been cultivated for its fruit which is reputed to be used in cider making in France and Germany.

The tree is very well suited to Canberra where it does not grow particularly quickly but withstands the climate well. A small tree, it is particularly valued for its fine autumn colouring. It usually changes colour in May after most of the other species have finished. It is also a rather fine tree in summer. It throws a few root suckers, but is not troublesome in this respect; the fruits resemble small apples and sometimes a heavy crop is rather a nuisance if it falls on a footpath.

It has reached about 35 feet with a crown spread of 25 feet.

Propagated by seed, which respond well to refrigeration treatment to break dormancy.

There are good trees at Dirrawan Gardens, Reid, and also in Gormanston Crescent, Deakin.

CRATAEGUS Linnaeus**HAWTHORN**

A rosaceous genus widely spread in the northern hemisphere, with more shrubs than trees but of which a few species are small trees, providing some very decorative species for horticultural work. The Hawthorns of North America are difficult to classify because of apomixis and hybridizing.

***Crataegus acerifolia* Hort.**

This species is distinguished by the palmately lobed leaves.

Native to the eastern part of the U.S.A. and Canada and the mid-west, it is at the most a small tree of some 30 feet with a 30 feet crown spread. It is valued chiefly because of its striking scarlet to crimson autumn foliage. It is a full-crowned tree in summer, rather thorny but useful in many localities. A very useful species for obtaining autumn effects.

Propagated by seed, it benefits by stratification for twelve weeks at 35° F.

It is well adapted to the climate and withstands hot and dry conditions well.

Trees are to be seen in Canberra Avenue, Narrabundah, parallel with Matina Street.

Crataegus crus-galli* Linnaeus*Cockspur Thorn**

This tree is distinguished by the very long thorns, up to about 3 inches in length.

It is native to the eastern and mid-west parts of the U.S.A. and Canada.

Very well suited to Canberra conditions, where it thrives, it is especially attractive for the fine colouring in autumn, which is orange, sometimes tinged with scarlet. A small tree of 15 feet-20 feet only.

It is propagated by seed and fruits every year. Improved germination is obtained if the seed is stratified at about 35° F.

Can be seen growing under Poplars in Kendall Street, Acton.

Crataegus Oxyacantha* Linnaeus*Hawthorn****English May**

A tree native to southern and eastern Europe.

It does very well here and was introduced early into the locality with settlement. It is rather spiny and makes a small, intricate tree which is useful for some purposes. As a decorative species it is superseded by the double pink form.

Of limited landscape use, it nevertheless finds a place here and there.

It is propagated by seed and is comparatively easy to handle.

Fruits every year. Most of the trees at the western end of Flinders Way are this species.

Crataegus Oxyacantha var. rosea Willd.

In two shades of pink, a horticultural form considered to have had its origin before 1770 in Europe.

It is one of the outstanding spring flowering trees which do well in Canberra; it makes a good show towards the middle of October after most other spring flowering species have completed flowering. Somewhat thorny, but a very useful small tree reaching about 40 feet with a crown spread of 30 feet.

Propagated by budding or grafting on to seedling stock.

There are good trees in front of the Manuka shops in Flinders Way and Furneaux Street.

Crataegus "Smithiana"

A form noted for the persistent and brilliantly coloured large fruits in winter. This had its origin in Canberra in seed from a plant of *C. mexicana* with *C. Azarolus* as the male parent, and has been propagated by grafting or budding. It is outstanding for winter display in that it carries a mass of scarlet berries tinged in places with orange, which hold for some months.

Well suited to the climate, it is moderately sized and makes a small tree up to about 30 feet high with a crown spread of 15 to 20 feet.

Propagated by grafting or budding on to seedling stock.

There are very good trees at the corner of Wilmot Crescent and Empire Circuit.

MALUS Mill.

APPLE

The genus is native to North America, Europe and Asia from which the cultivated apples have been derived.

Still more species than are at present used are likely to do well in Canberra.

Malus purpurea (Barbier) Rehd.

Crab Apple

A shrub or small tree native possibly to Japan.

There is a considerable variety in the shade of colour of the flower when raised from seed, and desirable forms are preserved and propagated vegetatively. The flowers are deeper when they first open and generally become paler at the end of the flowering period. Good forms are extremely handsome and are crimson when they first open, becoming pale pink or white finally. They are very floriferous. They sucker somewhat from the roots and must be pruned and shaped to get a good form. One of the outstanding flowering species which grow very well in this climate. They flower after the Japanese Cherry, usually about the end of September. Likely to be used more extensively in the future.

At the most it makes a small tree of some 30 to 35 feet with a spreading habit.

It can be propagated by seed, but to preserve desirable forms this must be done by budding or grafting.

There are numerous horticultural forms, one of which, "Gorgeous", is grown for its ornamental fruit which is brilliantly coloured red with lighter patches.

Specimens are planted at the Australian National University.

Malus Halliana Koehne var. **Parkmanii** Rehd.

Crab Apple

A graceful delicate pink coloured crab apple making at the most a small tree of 25 feet and of equal spread.

It is quite hardy in Canberra.

It may be seen at the Australian National University.

Malus spectabilis (Ait.) Borkh.

Chinese Flowering Apple

One of the larger crabs, reaching 30 feet and with a spread of 25 feet.

It is still one of the best forms.

The flowers are double and pink. They occur in densely massed trusses.

Planted at the Australian National University.

Malus ioensis (Wood) Brit.

Bechtel's Crab

This is an American apple often known as *M. angustifolia*. The commonly grown form known as Bechtel's Crab is a fine pink and late flowering form. It is a delicate pink and a fine garden plant.

It is a small round-headed tree at its largest being about 20 feet in height. It is planted at the Australian National University. Flowers later than most other varieties.

PRUNUS Linnaeus

PLUM

Widely distributed mainly in the northern temperate zone, and a few extending to the Andes in South America.

Prunus cerasifera Ehrh.

Cherry Plum

All the forms planted are with purple leaves in different shades, described as variety *atropurpurea*. This is identical with *P. Pissardii*, Carr. or *P. cerasifera* var. *Pissardii*, Bailey.

Native to western Asia and the Caucasus.

Widely planted. A group very satisfactory in Canberra, well suited to the climate and making a very good show with spring flowering. They are small trees and the dark foliage provides a very striking colour contrast with light or silvery leaved species. *P. cerasifera* var. *Pissardii* has almost white single flowers. *P. cerasifera*

sifera var. *nigra*, Bailey.f., has darker leaves, and the flower colour in the form we have is a pale pink. *P. blireiana*, Andre is another form, possibly a hybrid with *P. Mume*, which has semi-double pink flowers and is a very striking tree, but flowers rather early and the bloom is apt to be injured by frost.

P. blireiana Moseri (Moser) Koehne f. is similar but has paler-coloured flowers. The wood of *blireana* and *Moseri* is more fissile than the other species and the forms are not so hardy, although when flowering well they are both very attractive species and a necessary adjunct in making a satisfactory spring display.

P. cerasifera var. *nigra* is one of the hardiest, perhaps with the most handsome foliage, and makes the finest show. It is also the best for making an upright tree. They reach about 40 feet in height with a crown spread of 30 feet and are highly valued also because of their leaf colour in summer.

Propagated generally from stem cuttings or budding. If raised from seed a variety of forms result. *P. cerasifera* var. *Pissardii* and var. *nigra* fruit well, and when ripe the fruit is edible. The fruit of *P. blireiana* is not palatable.

var. *Pissardii* can be seen in Flinders way.

var. *nigra* can be seen in Manuka Circle.

var. *blireiana* can be seen in Canberra Avenue.

var. *Moseri* can be seen at Yarralumla Nursery.

ERIOBOTRYA Lindl.

A small genus of evergreen trees or shrubs in E. Asia.

Eriobotrya japonica (Thunb.) Lindl.

Loquat

This tree is distinguished by the large leaves and evergreen habit.

It is believed to be native to central China and is widely cultivated in east Asia and Japan.

A small tree to 20 feet or so, but with large attractive glossy leaves which make it useful for some effects. It is comparatively sparsely used at the moment but gives promise of being a species which will have greater use in the future. It is quite hardy in Canberra, and is one of the few broad-leaved evergreens, other than native species, which will endure the Canberra winter.

It is easily propagated by seed and is well known in some places for its fruit.

Trees can be seen in private gardens. Also the western courtyard of the John Curtin School of Medical Research.

GLEDITSIA Linnaeus

A small leguminous genus in the northern hemisphere and extending to South America. It is distinguished especially by the many branched spines on the stems.

Gleditsia triacanthos Linnaeus**Honey Locust**

This species is distinguished by the very large pods and the much branched thorns on stems and twigs.

It is native to the central and southern parts of the eastern half of the U.S.A.

A tree which thrives in the climate and is very hardy, it produces delicate, feathery foliage, although apt to become rather "stag-headed" if conditions are too dry. It suckers rather freely, especially when the roots are disturbed, and therefore is somewhat limited in use. The thorns are also a disadvantage in parks, and these become very much branched with age. There is a form, *Gleditsia triacanthos* var. *inermis* Willd., which is practically without thorns and which it is anticipated may have considerable use in various localities. There are some patented types of this sort much in demand in U.S.A. known as "Moraine Locust" or by other names. This has been introduced to Canberra but so far has not been planted out.

It reaches about 60 feet with a crown spread of about 40 feet.

Of some landscape value with its feathery foliage, and an attractive shade tree when well grown.

It fruits readily in most years and is propagated easily from seed or from root suckers.

Leslie Street, Ainslie, near Paterson Street.

SOPHORA Linnaeus

A leguminous genus in Asia and North America.

Sophora japonica Linnaeus**Pagoda Tree**

This species is rather similar to *Robinia* at first sight, but distinguished from it easily because of the green colour of the younger branches. The pods are also quite distinct. The constrictions between the seed in *Sophora* are much greater than in *Robinia* and the tissue of the pod is translucent and glutinous.

It is an attractive small tree planted fairly widely in some towns as a shade tree, as, for example, Madrid and Rome. It makes an attractive, round-headed, medium-sized tree with a delicate, rather graceful habit. It is well suited to the Canberra climate and has been planted in several streets. The flowers are an attractive creamy yellow and more delicate than those of *Robinia*, and it does not sucker from the roots (Plate 28).

It gives promise of being a reasonably long-lived tree. The oldest specimen is now about 30 years and has reached about 40 feet with a crown spread of 25 feet. It flowers in January.

It retains its foliage for a rather long time before shedding.

Fruits in most years and is propagated easily by seed.

There are two trees on either side of the Drill Hall, Kingsley Street, Turner (Plate 27); also they are planted on the southern side of Hutchins Street, Yarralumla.

CERCIS Linnaeus

A few species of this genus are found in North America, southern Europe and eastern Asia.

Cercis siliquastrum Linnaeus

Judas Tree

Distinguished by the prominent pink to mauve flowers and the persistent fruits which are pods.

Native to southern Europe and western Asia, it has been cultivated since ancient times.

It is a tree very well suited to the climate but is of rather slow growth. It gives promise of being a long-lived species. A small tree seldom exceeding 30 feet and of rather intricate, twisted habit, its flowers are rose-purple and striking when in bloom. The flowers appear before the leaves are far advanced. A useful species for its spring effect and quite attractive in leaf.

Raised by seed, it fruits well and produces plenty of viable seed.

Wentworth Avenue near the Printing Office.

ACACIA Tournef.

WATTLE

A genus spread through the tropical regions of the world and extensively developed, especially in the Phyllodineous group, in Australia. It provides many ornamental species.

Acacia baileyana F. Muell.

Cootamundra Wattle

Distinguished from most species by the bi-pinnate leaves and from the *Acacia decurrens* group by the fact that the pinnae are in from two-four pairs only, rarely more.

A. Baileyana is native to a comparatively restricted area in the vicinity of Cootamundra; it is widely planted, however, and is one of the outstanding wattles in Canberra. It is the species which provides a show of brilliant golden flowers in August. It grows very quickly, especially in its first few years, but is not long lived. The life varies according to the conditions under which it is growing, but the tree usually becomes unsatisfactory in fifteen-twenty years, and sometimes life is not prolonged beyond ten years. Trees which are becoming moribund may, if they are pruned after flowering, be temporarily rejuvenated.

It is extremely useful as a tree for short-term use while other slower growing ones are coming on, and when mature it forms a large, round-headed, dense crown with branches sweeping the ground. Some of the forms are very floriferous. In some years the blooms are damaged by frost and the display is somewhat spoiled. Unlike a number of other members of the group of Acacias with pinnate leaves, this species does not sucker from the roots.

It may be expected to grow at least 4 feet a year in height for the first three years. It seldom exceeds 25 feet in height with a crown spread of about 20 feet.

Widely used in landscape work for securing temporary effects, for its fine display in spring and its silvery foliage.

Propagated readily by seed, it fruits well in most years although there is an occasional poor crop. Most of the seed will not germinate unless treated in boiling water, although a small number in each batch will germinate without treatment. Seed will lie dormant in the ground for many years and will germinate when trees are removed, or especially when there has been previous burning. It is more or less naturalized in some localities, as on Black Mountain, and seedlings come up freely in a number of places.

State Circle is lined with these near Canberra Avenue.

Acacia dealbata Link.

Silver Wattle

The leaves of this species are bipinnate. It is separated from *A. Baileyana* by having pinnae in ten to twenty pairs and from its closest relatives, i.e., *A. decurrens* and *A. mollissima*, in its glaucous habit and hoary foliage.

A species widespread in forest areas in eastern Australia, it sometimes makes a tree up to 80 feet in wet gullies in the mountain areas of south-eastern Australia and Tasmania. Common as a tall shrub or small tree in the Canberra district. It is relatively short lived, but is of attractive appearance and has bright yellow flowers. It suckers vigorously from the roots, however, and therefore is not widely planted for ornamental use. It is not as short-lived as *A. Baileyana*, but nevertheless does not last for long.

Flowers in September, propagated by seed, as for *A. melanoxylon*. Best seen in forest on the Brindabella Road. Also in the Botanic Garden.

Acacia decurrens Willd.

Green Wattle

Distinguished from its close relative, *A. Mearnsii*, by the sharply angled branchlets and the early flowering, usually September-October. Widely spread, especially in coastal areas of eastern Australia.

It reaches a good height under favorable conditions, perhaps 70 feet. A very rapid grower when planted; with cultivation it is quite short lived, and becomes very decrepit after ten or fifteen years. It is subject to insect attack, especially wood borers. The foliage is dense, dark green and handsome in appearance. The tree suckers vigorously from roots and is therefore not as widely planted for a temporary screen as would be the case otherwise. Commonly reaches 40 feet under cultivation with a crown spread of 30 feet.

Propagated by seed as for *A. melanoxylon*. It does not fruit every year.

There are trees at the rear of the Patent Office.

Acacia implexa Bentham

Lightwood

Closely related to Blackwood from which it is separated by the absence of the folded funicle encircling the seed, any folds which occur being short and remaining under the seed. The phyllodes are somewhat more falcate than those of Blackwood.

A species widespread in eastern Australia, it occurs in Canberra naturally on rocky outcrops, sometimes with *Casuarina stricta*. It has attractive foliage and resembles Blackwood closely. A hardy tree, fast growing when young, it is a suitable plant for providing attractive foliage in a dense mass. It is not sufficiently long lived for planting to endure for long periods.

Reaches about 40 feet with a crown spread of 20 feet. A round-headed tree.

Propagation and seeding as for Blackwood.

Can be seen growing naturally on Red Hill.

Acacia melanoxylon R.Br.

Blackwood

Distinguished by having phyllodes with several veins and with a funicle which encircles the seed completely in a double fold.

A species widely spread in south-eastern Australia and Tasmania. Seen at its best as a tall tree in wet gullies in Gippsland and Tasmania where it reaches 100 feet. It also occurs as a small tree on basaltic soils on the Monaro and elsewhere in quite dry conditions. It is an attractive tree with a dense crown when open grown and with an attractive branching habit in the tall growing gully form. The juvenile foliage is distinctive and bipinnate for a considerable time.

It grows well for a time here but is not long lived under cultivation, a feature which is shared by most of the other species. It may become riddled with borers after fifteen or twenty years. It does not suffer this disability overseas and is used as a street tree here and there as, for example, in Santa Barbara, California. The flowers are rather pale yellow, but it is worth while growing for its foliage.

Reaches about 40 feet with a crown spread of 20 feet.

Flowers in October. Propagated by seed. Fruits well but there are often years with very poor seed production. Easily raised from seed if boiling water treatment is given.

Seen in gullies in forest on the Brindabella Road. Planted on the eastern side of Lawley House.

Acacia Mearnsii de Wild.

Black Wattle

Distinguished from *A. decurrens* by the softly pubescent branchlets which are without angular wings. A less attractive tree than *A. decurrens* in both foliage and flower, which is pale yellow, it is widely spread throughout south-eastern Australia and Tasmania. It also flowers later than *A. decurrens*, usually November-December. It is, nevertheless, a species much more important commercially because of the considerably higher yield and quality of tannin in the bark, and as such is one of the

main tan-bark Acacias. It has been very extensively planted overseas in South Africa, North Africa and elsewhere for this reason. Suckers from the roots and is therefore desirable as a screen, as it is a less attractive tree in any case. It is also relatively short lived for the same reasons as *A. decurrens*. Widely known as *A. mollissima*.

Reaches about 40 feet here with a crown spread of 30 feet.

Propagation as for *A. melanoxylon*.

There are several trees to be seen in front of the Hotel Acton.

Acacia pycnantha Bentham

Golden Wattle

A form of Golden Wattle has been located on Mt. Jerrabomberra on the Cooma Road near Queanbeyan. This is distinguished from the above species by the rather broad single-veined phyllodia, which are narrower than the usual form.

It is a moderately long-lived tree with the general form of Blackwood but with more open foliage. It flowers well with a good deep golden yellow colour, which, however, is not quite as good as the species as it normally occurs in South Australia or Victoria. The stems are more glaucous than the normal form also.

Flowers in September. Lives for twenty years or so. Propagation by seed as for *A. melanoxylon*.

There are trees on the Macquarie Street side of the Barton Offices.

ALBIZZIA Durazz.

A leguminous genus of the tropics with one species in Western Australia. Either deciduous or evergreen. Closely related to *Acacia*.

Albizzia Julibrissin var. *rosea* (Carr.) Mouillef.

Silk Tree

A small spreading deciduous tree about 25 feet tall and with a similar spread. Native from Persia to Central China and widely planted elsewhere.

In flower, it is distinct because of the numerous long, bright pink stamens. The leaves are finely bipinnate, and reminiscent of Jacaranda.

The fruit is a pod similar to that of *Acacia*.

Quick growing when young and not very long lived.

It is a very useful tree for landscape use—the texture of the foliage not being duplicated by any other species hardy in Canberra.

There are no old trees here as it is a recent introduction.

Propagated by seed. Already fruiting here.

Specimens can be seen at Griffith Shopping Centre near Stuart Street (Plate 30).

ANGOPHORA R.Br.

A genus closely related to *Eucalyptus*, but distinguished from it by the persistent calyx teeth on the hypanthium and the opposite leaves at maturity.

Angophora intermedia DC.

Apple

This is native to the coast of New South Wales and up to the Tablelands, but does not extend inland from the edge of the coastal scarp to any extent, and is distinguished by its rough bark and relatively narrow leaves.

Although it is somewhat frost sensitive in Canberra, it does survive even though it may be damaged in winter. It forms a handsome tree with dense spreading foliage and bears large umbel-like cymes in terminal corymbs. When in flower it is quite showy, although the flowers are white or pale cream.

Has reached about 30 feet with a crown spread of 20 feet.

Of limited use because of its frost sensitivity.

Propagated by seed. Fruits irregularly in Canberra, although it occasionally produces viable seed. Flowers irregularly from January to June.

Some quite well grown trees are to be seen at the corner of Liversidge Street and Balmain Crescent to the south of University House.

EUCALYPTUS L'Herit.

Perhaps the most commonly known and distinctive of Australian genera. This is a unique genus containing over 600 species confined almost entirely to Australia, although a few species extend to New Guinea and Timor. Probably only one species is found naturally outside Australia and at the same time not on the mainland, namely *Eucalyptus deglupta*, which is called Mindanao Gum and is native to New Britain and Mindanao in the Southern Philippines.

Eucalyptus is a unique genus in many ways, containing, among other things, the tallest broad-leaved tree in the world in *Eucalyptus regnans*, which is called Mountain Ash in Victoria, and Swamp Gum in Tasmania. At the other extreme there are quite small shrubby species. Many species have remarkably brilliant and attractive flowers but, unfortunately for Canberra, most of them are frost sensitive. One of the most outstanding of these is the well known Western Australian scarlet flowering gum, *Eucalyptus ficifolia*.

There are several very decorative species and many others are of prime importance in Australia as a source of timber. Some are used for eucalyptus oil, honey and tan bark. They are also used as windbreak and shade trees. Many species are extensively planted overseas in countries with warm-temperate to tropical climates, and extensive plantations exist in South Africa, North Africa, California, Florida, South America, Trinidad, Southern India and the Mediterranean.

The classification of the group presents considerable difficulty because of the diversity of form within the genus. As compared with the Northern Hemisphere, the recognition of the different tree species in the coastal zones of Australia is a

much more difficult problem because it consists frequently in learning to distinguish different species (of *Eucalyptus*), whereas in the Northern Hemisphere the problem is much more one of separating different genera.

- A1 Mature leaves mainly opposite, glaucous and sessile—
 - B1 Fruits in three—
 - C1 Bark smooth *pulverulenta*
 - C2 Bark rough, fibrous *cinerea*
 - B2 Fruits more than three in umbels *melanophloia*
- A2 Mature leaves alternate, petiolate and lanceolate—
 - D1 Fruits single in leaf axils *globulus* var.
 - D2 Fruits in umbels of three—
 - E1 Fruits more than $\frac{1}{2}$ inch diameter *compacta*
 - E2 Fruits less than $\frac{1}{2}$ inch diameter—
 - F1 Buds with a short pedicel (less than $\frac{1}{4}$ inch)—
 - G1 Buds and fruits glaucous, juvenile leaves orbicular *rubida*
 - G2 Buds and fruits green, juvenile leaves lanceolate *viminialis*
 - F2 Buds with a long pedicel (more than $\frac{1}{4}$ inch) *sideroxylon*
 - D3 Fruits in umbels of seven or more—
 - H1 Valves of fruits markedly sunken below rim—
 - I1 Bark deeply furrowed and somewhat corky *racemosa*
 - I2 Bark flaky-fibrous, at least in the butt—
 - J1 Leaves broadly ovate to orbicular—
 - K1 Fruits about $\frac{1}{2}$ inch long *albens*
 - K2 Fruits less than $\frac{1}{2}$ inch long *polyanthemos*
 - J2 Leaves lanceolate less than 8 inches long—
 - L1 Bark finely flaky, fruits less than $\frac{3}{16}$ inch diameter *microcarpa*
 - L2 Bark usually coarsely fibrous. Fruit more than $\frac{3}{16}$ inch diameter *melliodora*
 - J3 Leaves lanceolate (more than 8 inches long) and coarse—
 - M1 Buds and fruits glaucous *Cordieri*
 - M2 Buds and fruits not glaucous *elaeophora*
 - H2 Valves of fruit exserted or level with the rim—
 - N1 Peduncle strongly flattened *Maideni*
 - N2 Peduncle terete or almost so—
 - O1 Smooth barked trees—
 - P1 Buds with long conical operculum greater than length of calyx tube—
 - Q1 Leaves penniveined *Blakelyi*
 - Q2 Leaves with semi-parallel venation *stellulata*
 - P2 Operculum conical but not longer than calyx tube—
 - R1 Fruit turbinate *ovata*

- R2 Fruit hemispherical—
 - S1 Valves somewhat exserted *maculosa*
 - S2 Valves flat or almost so—
 - T1 Venation of leaves semi-longitudinal *pauciflora*
 - T2 Venation penniveined—
 - U1 Fruits $\frac{1}{4}$ inch diameter *Rossii*
 - U2 Fruits $\frac{1}{4}$ inch diameter *micrantha*
- O2 Rough barked trees (at least at the butt)—
 - V1 Valves strongly exserted—
 - W1 Buds elliptical 7 to umbel *Bridgesiana*
 - W2 Buds approximately diamond shaped and operculum rostrate, generally more than seven to an umbel *macrorrhyncha*
 - V2 Valves slightly exserted or slightly enclosed—
 - X1 Fruits pyriform mostly three-celled *fastigata*
 - X2 Fruits hemispherical or truncate spherical—
 - Y1 Umbels generally with more than ten flowers—
 - Z1 Bark rough—
 - AA1 Fruit $\frac{1}{4}$ inch diameter, leaves coriaceous *dives*
 - AA2 Fruit $\frac{1}{4}$ inch or less diameter, bark rough to small branches, leaves thin textured *Robertsoni*
 - Z2 Bark smooth except for first one-eighth of height *Andreana*
 - Y2 Umbels generally seven flowered—
 - BB1 Leaves less than $\frac{1}{4}$ inch broad, grey-green *Nicholi*
 - BB2 Leaves more than $\frac{1}{4}$ in broad, green *Macarthuri*

Eucalyptus albens Miq.

White Box

Distinguished from related Boxes by the glaucous stems and the rather larger fruits, also the broadly lanceolate leaves with a grey-glaucous colour.

Mainly in New South Wales on the western slopes, Victoria and Queensland. It is one of the outstanding honey-producing trees.

It is native close to the Australian Capital Territory boundary, but it is doubtful if the species has ever occurred naturally in the Australian Capital Territory. It is found between Uriarra and Wee Jasper. It has been planted to some extent and is well suited to the climate, withstanding dry and hard conditions well.

Not fast growing and apt to form a somewhat crooked stem unless pruned carefully, it nevertheless makes a full-crowned tree of attractive appearance when well grown. The large, broad leaves and their glaucous appearance provide a useful contrast with other species.

It has reached, in cultivation, about 40 feet and gives promise of becoming a considerably larger tree.

Fruits heavily every two or three years. Propagated readily from seed, but, like other Boxes, it is subject to damping-off more than many other species of *Eucalyptus*. Flowers in autumn and winter.

There are planted trees on the Federal Highway near the Mount Ginn Speedway Track. Also on Mount Mugga.

***Eucalyptus bicostata* Maiden, Blakely and Simmons.**

Eurabbie

Commonly known as Blue Gum or Tasmanian Blue Gum, it is the mainland species corresponding to the Tasmanian *E. globulus*. It is distinguished from that species by having fruits in umbels of three, whereas the fruits are generally solitary in *E. globulus*. Otherwise it is distinguished by the very glaucous, opposite juvenile foliage and the very long leaves (Plate 32).

Native to Victoria and New South Wales, it occurs naturally near Canberra at Burrinjuck. It is a very rapid grower when young, and after a few years—five or six—the juvenile foliage is lost completely and the mature type of foliage develops. It suffers severely from drought on sites that are dry or where the soil is not good. In its natural habitat it receives rather more rain than that which is usual for Canberra. It is, when well grown, a fine tree, but must be grown where there is plenty of room if it is to fulfil usefully a purpose (Plate 31).

Reaches about 90 feet on favorable sites such as Duntroon.

One of the easiest of Eucalypts to grow from seed, it flowers every year and produces reasonably heavy crops. Flowers in January.

It is planted in Hobart Avenue in the central plantation.

***Eucalyptus Blakelyi* Maiden**

Blakely's Red Gum

Distinguished by the long, conical operculum from one and a half to two and a half times the length of the calyx tube, and also by the strongly exerted valves in the fruit.

Native over extensive areas of the western slopes and tablelands of New South Wales and also to Queensland. It is one of the trees native to the Canberra city area. It is a wide spreading, round-headed tree. The foliage is rather heavy in texture, and at some times of the year is (for a Eucalypt) a very bright green. The bark colourings of this species are particularly attractive, and it is one of the decorative Eucalypts which may be used extensively for landscape work.

It is a fairly large growing tree, reaching about 70 feet, with a wide-spreading crown and, therefore, must be planted with adequate space. There are trees doubtless more than 250 years old in Canberra.

It fruits in most years and is readily propagated from seed. Flowers end of November. In the last few years there have been increasingly heavy attacks of Psyllids on this species which are disfiguring and which when severe drain the vitality of the tree. Old specimens sometimes die after repeated attacks.

There are fine specimens at the northern side of the Institute of Anatomy.

Eucalyptus Bridgesiana R. T. Baker

Apple Box

Distinguished by the distinctive bark which fissures in small plates. The umbels are seven-flowered, with six buds arranged radially around the central one.

Widely spread in the inland and western slopes of Victoria and New South Wales.

A species native to the city area, it is umbrageous with wide spreading branches. It is not as long lived or as durable as Yellow Box or Red Gum, but nevertheless has a long life and with some care may be maintained for an extensive period. It is somewhat subject to breakage of heavy branches if pruning is not attended to.

A hardy species, it has considerable value as a shade tree but little other use. Reaches about 70 feet with a 60-feet spread.

Fruits in most years and is easy to raise from seed. Flowers end of February. There are old specimens at the southern end of Edinburgh Avenue.

Eucalyptus cinerea F. Muell.

Argyle Apple

Readily distinguished by the persistence of the glaucous, orbicular to ovate juvenile type foliage in the mature tree. The fruits are also in umbels of three (Plate 34) and the bark is fibrous and rough.

Occurs in natural stands, principally in New South Wales from Berrima to Tumut. It is also found near Beechworth in Victoria, but is a tree of comparatively restricted natural range. It does not occur naturally in the Australian Capital Territory but is found within 10 miles of the north-east boundary.

A moderate-sized tree, it is a very handsome species. Unlike most Eucalypts it retains its lower branches as an old tree, and frequently they droop and sweep the ground. The crown is strikingly glaucous and it is a useful species for various landscape effects (Plate 33). The bark is rough but has a very attractive pinkish-brown colouring, especially in the younger branches at some seasons of the year.

Reaches about 50 feet in height with a 30-feet crown spread.

Readily propagated from seed, it fruits every year. Flowers for several weeks commencing in September.

There are three very good trees in Telopea Park opposite Jardine Street. It is also planted in Henty Street, Braddon.

Eucalyptus dives Schauer

Broad-leaved Peppermint

Distinguished by the strong odour of the leaves when crushed and the finely fibrous bark.

Widely distributed in New South Wales above about 2,000 feet on rather poor soils, and also widely in eastern Victoria. It is native occasionally to the Canberra district and common in the more hilly parts of the Australian Capital Territory. It is not especially ornamental and is therefore seldom planted; however, it is a very drought resistant species capable of growing under poor soil conditions

and therefore has a use for special purposes. Its leaves are distilled for piperitone oil in the Braidwood district and elsewhere.

Reaches about 50 feet under ordinary conditions.

Propagated readily by seed, it fruits heavily every year or two and flowers at the beginning of November.

Trees growing naturally may be seen at the foot of Black Mountain.

Eucalyptus fastigata Deane and Maiden

**Brown Barrel
Cut Tail**

Closely related to the Victorian Mountain Ash, *E. regnans*, it occurs as a gully species on the Dividing Range and also in the highlands of New South Wales and Victoria. It is distinguished principally by the three-celled pyriform fruit.

It has been planted to some extent in the city, but requires some assistance with better soils and additional water supply to thrive satisfactorily. Grows well for a few years and thereafter, unless aided, becomes scraggy and subject to die-back in dry years. It is a tall-growing species with rather light green foliage and silvery, clean-barked branches in the crown with a rough bark on the main stem. It reaches some 150 feet in its native habitat, with a crown spread of about 80 feet. One of the useful timber species of the district. Its ornamental use is limited because it is not well suited to the climate.

Propagated readily from seed, it fruits well only about every four years.

There is a tree in Telopea Park at the south-western end.

Eucalyptus globulus var. *compacta* (Hort.)

Californian Blue Gum

Distinguished by the compact, dense, round-headed form of the tree.

This variety has arisen in cultivation in California and some large specimens planted are to be found in San Diego as well as in other parts of California. It is not known in Tasmania where no doubt if a plant occurred naturally, it would be very quickly eliminated by competition from the taller-growing, ordinary form of the species.

It has limited use for landscape effects. It is of scientific interest because it indicates the type of variation which may occur in *Eucalyptus*. Yarralumla Nursery.

Eucalyptus Andreana Naudin

River Peppermint

Distinguished among the Peppermints by the fact that the main portion of the stem and branches is smooth barked.

Native to the south coast and scarp of New South Wales and eastern Gippsland.

This has been planted fairly frequently as an ornamental tree and it forms an attractive specimen. The foliage is graceful and rather light green compared with most other Eucalypts, and somewhat pendulous in habit. The branching habit is

graceful. Though well removed from its natural habitat it withstands the climate fairly well and except in extreme conditions gives promise of being a useful species for a moderate length of life. It is not sufficiently drought hardy to be planted in avenues or as a street tree.

Reaches about 70 feet with a crown spread of 50 feet.

Propagated by seed, it fruits very heavily most years. Flowers early October or even earlier.

There are several trees in Latrobe Park.

Eucalyptus Macarthuri Dean and Maiden

Camden Woollybutt Paddy's River Box

Distinguished by the unusual odour of the oil from the leaves, which contains a high proportion of geraniol, one of the most valued of the essential oils from the genus but rather low yielding in amount for a given quantity of leaves.

Native to a limited area in the vicinity of Paddy's River, Fitzroy Falls, Moss Vale and the Blue Mountains of New South Wales, the tree occurs naturally in a considerably wetter climate than that of this district. It has been planted on a number of occasions and grows rapidly and effectively at first, but suffers in dry years and upon becoming older often becomes stag-headed, especially on the harder sites. It should be limited strictly to better soils and good conditions in this district. It is a rather open-crowned tree when older and must be lopped and pruned to retain a compact head which will not break in the wind.

Fruits regularly and at times heavily. Well-grown specimens which retain a dense crown are attractive trees.

It reaches a height of about 75 feet under cultivation.

Propagated readily from seed. It flowers from the end of November to January.

It is seen in Mugga Way between Tennyson Crescent and Baudin Street and in Furneaux Street.

Eucalyptus maculosa R. T. Baker

Red Spotted Gum White Gum

This first vernacular name should not be confused with Spotted Gum, which is a quite different species. It is recognized by the strikingly white stem, narrow foliage, slightly exserted valves and the fruits in umbels of seven.

It occurs naturally on the western slopes in New South Wales and on the lower foothills of the Southern Highlands in New South Wales and Victoria, commonly with *E. macrorrhyncha* in dry sclerophyll forest.

It is native to the dry sclerophyll forest of the Canberra district and is one of the most attractive of the native trees for ornamental purposes. It has little commercial value but its striking white trunk, which changes to a bright pink in late spring or summer just before it decorticates, makes it a handsome species. The branching habit

and form of the crown is also graceful and it is of great value as a shade and decorative tree. It has been planted frequently and reaches moderate heights up to about 70 feet with a crown spread of about 40 feet. There is considerable variation in the branching habit in plants raised from seed.

Propagated readily from seed, it fruits every year as a rule but the quantity of the crop is irregular. Flowers in March or early April.

There are good trees in Dampier Crescent (*see* photograph reproduced as front endpaper) and some of those in Mugga Way are of this species.

Eucalyptus Maidenii F. Muell.

Maiden's Gum

Distinguished from *E. bicostata* by having its fruit in umbels of seven.

Occurs naturally in eastern Victoria and south-eastern New South Wales.

It is a more drought-resistant species than *E. bicostata* and it is a somewhat slower growing and more round-headed tree than that species. The leaves are also somewhat more falcate. In general appearance and purpose it may be used as *E. bicostata*. It is too big a tree to plant in small residential areas.

Has reached about 70 feet.

Propagated readily from seed, it fruits in most years. Flowers end of January.

It is planted on either side of Parliament House, in Queen Victoria and King George Terraces.

Eucalyptus macrorrhyncha F. Muell.

Red Stringybark

Distinguished by the prominent dome and very strongly exerted valves of the fruit.

Native to New South Wales, Victoria and South Australia, it occurs commonly in Canberra.

A tree of limited value for ornamental purposes because of its rather open crown and the lack of adaptability to growing in open conditions, where it suffers badly from exposure. It generally has a very straight stem when young, and therefore provides a useful, though small, timber tree in areas where the general timber production is limited.

Under natural conditions reaches about 70 feet.

Grows readily from seed. Frequently carries heavy crops. Flowers end of November to midsummer.

It is seen as its best on Black Mountain. Planted in Westbourne Woods (Plate 35).

Eucalyptus melanophloia F. Muell.

Silver-leaved Ironbark

Distinguished from most species by the persistence of the juvenile type of leaf in the mature tree and the "ironbark" type of bark.

Native to the western parts of northern New South Wales and extensively to Queensland.

Although its native habitat is very different from and distinctly warmer than that of Canberra, it survives the climate here and fruits in mild seasons, even though it is

frost damaged in cold years. It is not, however, as attractive as *E. cinerea*, and is therefore not likely to be used where the effect created by this species is desired.

Has reached about 35 feet in height with a crown spread of 20 feet.

Propagated from seed, it fruits often and produces moderate crops of seed. Flowers in June.

It is seen at its best on Black Mountain. Planted in Westbourne Woods.

Eucalyptus melliodora A. Cunn.

Yellow Box

Distinguished mainly by the sunken valves of the fruit, terminal inflorescence and the blunt points on many of the leaves.

Native extensively through inland slopes in Victoria, New South Wales and Queensland, it occurs naturally in the Canberra city area. It is a very attractive species, having a fine dense crown when well grown and a rather yellowish tinge to the bark. One of the best honey producers. It is slower growing than many other eucalypts, and it is somewhat difficult to get a straight stem in the early stages of growth, but the final form of the tree is so attractive that it repays the trouble of growing it. It is a round-headed, wide spreading tree typical of the woodland of the area.

It reaches commonly about 70 feet in height. There is a good deal of variation in the natural trees in colour of foliage from green to strongly glaucous. It is sensitive to changed conditions, and if the ground under it is covered with additional soil and watered it frequently dies after four or five years.

It fruits heavily every two or three years, but otherwise sparingly. Seed is small and it requires some care in raising as it is subject to damping off. Flowers generally in November and December.

There are fine trees near the Prime Minister's Lodge in Adelaide Avenue.

Eucalyptus micrantha D.C.

Snappy Gum

Native from the coast to the tableland of New South Wales and also to Queensland.

Closely related to *E. Rossii* and *E. haemastoma*. It is distinguished from these two species by the intermediate size of the fruits. The bark, which is otherwise clean following decortication, has scribbles due to a Lepidopterous insect, as on *E. Rossii*.

Not well suited to the Canberra climate. It manages to survive when planted, though frequently looks chlorotic. The crown, because of lack of suitability to the climate, is generally thin.

Has reached about 40 feet with a crown spread of 20 feet, but shows signs of decline at an early age.

Propagated readily from seed, it fruits occasionally and flowers at the end of November.

There are trees in Tennyson Crescent near Nares Crescent.

Eucalyptus microcarpa Maiden

Grey Box

Distinguished as one of the Grey Boxes because of the bark and the markedly sunken valves to the fruit and terminal inflorescence, and from related species by the rather narrow, lanceolate leaves.

Native to the western slopes of New South Wales and Victoria.

It has been planted in Canberra, which though a little colder than its native habitat, permits it to develop as a good tree. Growth is moderately fast. It carries a rather light crown with leaves clustered at the end of the branches. It withstands dry conditions well, but is apt to form rather ugly branches unless pruned carefully in the young stages. It has limited use for landscape purposes. It is valuable on hard sites where it will produce a tree of good dimensions.

Reaches about 60-70 feet under cultivation.

Propagated readily from seed, but like other Boxes subject to damping-off. Seed crops are very heavy every second year or so. Flowers in autumn.

Planted in Wilmot Crescent.

Eucalyptus Nicholi Maiden and Blakely

A graceful tree, distinguished by the fine, somewhat pendulous leaves and persistent bark. Related to *E. maculosa* botanically, but distinct from it because of the rough bark.

Grows naturally on the New England tablelands in New South Wales.

There are no old trees in Canberra, but it does quite well in the climate and gives some promise of satisfactory growth in the future. It is a very graceful tree when well grown and, provided it is shaped a little when young, gives promise of being a useful tree.

The crown is somewhat glaucous and the bark has a good, rich brown colour when well grown.

The largest tree at present is about 30 feet high with a crown spread of 15 feet. Propagated easily from seed.

It can be seen in Solander Place near the corner of Schlich and Banks Streets.

Eucalyptus ovata Labill.

Swamp Gum

Distinguished by the markedly turbinate fruits and exserted valves.

Native to swampy places in cold areas, extensively in Tasmania, Victoria, also to South Australia and the Southern Tablelands of New South Wales. Does not occur naturally in the Australian Capital Territory but is found a few miles to the east near Braidwood.

Has been occasionally planted and grows rapidly for a start but does not persist on dry soils, being subject to dead-top and unthrifty development after the first years.

An attractive tree with a rich pinkish-bronze colour in the bark at some seasons of the year when well grown in a suitable site. It must be used with care in this area and confined to wet soils, but does not live long away from its natural habitat.

Propagated readily from seed, it fruits moderately well every two or three years under cultivation. There are old trees in Telopea Park near Jardine Street.

***Eucalyptus pauciflora* Sieber**

**Snow Gum
Cabbage Gum**

Distinguished by the thick, shiny leaves with almost parallel primary veins.

Native to cold plains from Tasmania to northern New South Wales approximately to the Queensland border; there are several distinct forms of this species. It is native to Canberra, where it fringes the grassy plains. It is not very long lived as Eucalypts go in their native habitat, and in the absence of regeneration most of the trees now persisting are declining rapidly at between 100–150 years of age. It is a distinctive and decorative tree, and the shining leaves and bright red stems make it a particularly attractive specimen at times. The trunk is white and the leaves hang vertically.

It reaches about 40 feet in height and is a tree which is suitable for ornamental use (Plate 36).

Propagated readily from seed, it fruits sparingly every year and occasionally heavily. Flowers in October.

It is well displayed in Ormond Street and also in McIntyre Circle.

***Eucalyptus polyanthemos* Schau.**

Red Box

Distinguished by the sunken valves and the very thin rim to the fruit and as with other Boxes a terminal inflorescence. Native to dry sites, especially on the low ridges of low spurs on the inland side of the ranges in Victoria and New South Wales. Also to the Canberra district. A very attractive tree with a dense round head and generally with broad-ovate to almost orbicular leaves. A very decorative species suitable for street or park planting, with strong wood which needs comparatively little attention to ensure wind resistance.

It reaches about 60 feet in height.

Propagated from seed, it is somewhat susceptible to damping-off, and is one of the more difficult species of *Eucalyptus* to raise. Flowers in September.

David Street, Turner, is planted with this species.

***Eucalyptus racemosa* Cav.**

Narrow-leaved Ironbark

Distinguished by the small fruits with sunken valves and the narrow leaves, as well as the furrowed, rather corky bark of the "ironbark" type.

Native extensively to the western districts of New South Wales and Queensland, extending to the coast farther north in Queensland. The species is highly valued for its strong durable timber.

It is native to areas a considerable distance to the north of Canberra, but nevertheless resists the Canberra winters with relatively little frost damage and makes a very attractive round-headed tree here.

It is slow growing and under cultivation has reached about 35 feet in 30 years.

The fine foliage makes it a distinctive and attractive species. The wood is strong, and the tree forms a compact crown.

Propagated from seed, it fruits sparsely in Canberra. Flowers in early summer. There is a clump in Westbourne Woods.

Eucalyptus Robertsoni Blakely **Robertson's Peppermint**
Narrow-leaved Peppermint

This is one of the narrow-leaved Peppermints distinguished by the strong odour of the crushed leaves. It is closely related to several other narrow-leaved Peppermints, from which it is distinguished by the fact that the operculum is slightly longer than the calyx tube and the buds are somewhat glaucous.

Occurs naturally in the wetter parts of the Southern Highlands of New South Wales and Victoria.

This is planted but little in Canberra at present. It needs higher rainfall and better soil to thrive, but when well grown is a very attractive tree and is often successfully left as a shade tree in paddocks in areas like Brindabella or Billapiloola. It retains its lower branches to a greater extent than most Eucalypts, but not quite so much as *E. cinerea*. The crown is generally somewhat glaucous in appearance.

Under cultivation it reaches about 60 feet in height.

Propagated readily from seed. Fruits heavily every two or three years in January.

There is a tree near the junction of Sandwash Road and Brisbane Avenue.

Eucalyptus Rossii Baker and Smith **Scribbly Gum**

Distinguished by the flat rim of the fruit which is dull red coloured, and the "scribble" on the trunk caused by a Lepidopterous insect feeding on the cork cambium before decortication.

Confined generally to dry ridges on the central and southern tablelands. When well grown it can be an attractive, straight-stemmed tree, but it frequently becomes very thin in the crown and unattractive when old. The foliage is rather duller in colour than most other species, and therefore it has but limited use for ornamental purposes. The bark is generally white and at times has attractive mottlings. It is difficult to separate from *E. maculosa* in the natural condition, but if the scribble marks of the insects can be seen on the trunk, this is absolutely conclusive in making the separation. Rarely planted, it can endure extremely dry and hard conditions.

Reaches about 50 feet in height.

Propagated by seed, it fruits well every year or two. Flowers in December or January.

Planted in Canberra Avenue between National Circuit and State Circle.

Eucalyptus rubida Deane and Maiden

Candle Bark

Native extensively to the eastern part of New South Wales extending to Queensland, common in Victoria, also in Tasmania and South Australia.

A species which has been painted by Heysen from specimens growing naturally near Hahndorf in South Australia. It is one of the Eucalypts which is often regarded as characteristic of the genus, and is a very graceful and attractive tree. At certain times of the year the bark turns a brilliant pink in patches, which adds to its value.

It is native to the city area, but is only long lived on deeper soils, although these need not necessarily be highly fertile. On shallow drier soils it is quite short lived and subject to formation of dead branches in the crown. It is a tree also which must be lopped and pruned considerably to prevent uncontrolled growth leading to windbreak. In any case also it is not a long-lived tree compared with Yellow Box, Red Gum and some of the other species. It is a tree which always finds a use because of its beauty and graceful appearance. Very prone to attack by the scarab Christmas Beetle which in some years, and apparently with increasing frequency, completely defoliates it.

Flowers in November or December.

Planted in Mugga Way mixed with *Eucalyptus maculosa*.

Eucalyptus sideroxylon (A. Cunn) ex. Benth.

Mugga

Red Ironbark

Distinguished by the deeply furrowed bark characteristic of the Ironbark group, in most forms the umbels are three-fruited and the fruit has a long pedicel. There is a form var. *rosea*, with pink filaments which is attractive in flower, and it is planted a good deal in Victoria as a roadside tree.

Native to dry inland slopes of Victoria, New South Wales and extending to Queensland.

It is not native to the Australian Capital Territory, but occurs about 40 miles to the north near Yass. A very decorative and attractive species showing markedly glaucous crown with a dark, warm brown to black deeply furrowed trunk. It is rather slow growing but is very hardy and withstands the climate moderately well, but often suffers greatly from insect attack.

The largest trees in Canberra are about 30 feet—less than half the size it can achieve in its natural habitat. It is valued for its timber and perhaps to some extent for the high tannin content of the bark.

Propagated by seed. Flowers in spring.

There are some trees at the eastern end of Broughton Street.

Eucalyptus viminalis Labill.

Ribbon Gum

Manna Gum

Distinguished by the three-fruited umbels and by the freshly decorticated bark hanging in long ribbons from the branch axils. Native over extensive areas especially

in creeks and rivers on alluvial soils, on basalt soils as a woodland species, and wetter forests from Tasmania, South Australia, Victoria and New South Wales. There is a form which makes a woodland tree in cold tableland areas near Cooma. A very handsome white-barked large tree, it needs a deep soil though not necessarily fertile soil, for best development. It becomes a poor tree under hard conditions. Originally native to the river sand banks in the city area along the Molonglo River, but probably all these trees have now been destroyed although the type can be seen at Tharwa. There was one large veteran ten years ago on the fifth fairway of the Royal Canberra Golf Course, in the future lake. Otherwise common in the Australian Capital Territory west of the Murrumbidgee.

A rather open-crowned tree, it carries its leaves towards the end of long branches. While not quite so subject to branch breakage as *E. rubida*, it must nevertheless be pruned carefully to produce a reliable wind-firm tree. It stands usefully in contrast with other species and under good conditions it is a desirable tree where a tall screen or prominent landscape effect is desired. It is a very picturesque tree in its natural state.

Reaches to over 150 feet in height naturally with a crown spread of 100 feet.

A widely planted species overseas, especially in California.

Propagated readily from seed, it fruits well only every two or three years.

There is a plot at the corner of Cowper Street and Cox Street, Ainslie.

FRAXINUS Linnaeus

ASH

A fairly large genus widely distributed in the Northern Hemisphere.

Fraxinus excelsior Linnaeus

English Ash

Distinguished from the other ash species by the black buds which stand in contrast with varying shades of brown which are unusual in other species.

Native to Europe and Asia Minor and cultivated for a very long time.

Not well suited to the Canberra climate, which is apparently usually too dry. It may be grown under cultivated conditions where it forms a moderate-sized tree up to about 40 feet in height.

The form with golden leaves and stems known as var. *aurea* is sometimes planted with good effect.

Propagated by seed, which in germination responds to refrigeration treatment. Fruits occasionally. Horticultural forms are usually budded. Flowers early October.

Planted in Rodway Street, Yarralumla.

Fraxinus Ornus Linnaeus

Manna Ash

Distinguished from the most closely related species, *F. oxycarpa*, by the fact that it flowers in early spring.

Native to the south of Europe and western Asia.

A round-headed, moderate-sized tree, with a graceful habit and pleasing foliage. Some forms colour a very clear yellow in autumn and are valuable in the landscape for this reason. It comes into leaf rather late and sheds its leaves rather early.

It is moderately well suited to these conditions, but does not thrive on poor soil. Rather slow growing. There are some forms which change to a reddish-brown in autumn.

Not sufficiently drought hardy to be recommended for street planting generally.

Reaches about 50 feet with a 40 feet spread.

Propagated by seed. It fruits fairly regularly. Seed responds markedly to stratification treatment.

At the Hockey Field, Manuka.

Fraxinus oxycarpa Willd.

Desert Ash

Distinguished from *F. Ornus* by the fact that it flowers in mid-winter.

Native to southern Europe, east to Persia and Turkestan. It is very well suited to the climate and is one of the most thrifty of the Ashes. While it grows very slowly on poor sites, it nevertheless survives. Makes a very good round-headed shade tree on better soils. It usually turns a good, clear golden yellow in autumn.

A useful tree for street planting and also as a specimen shade tree.

It reaches moderate dimensions up to about 50 feet with a crown spread of 40 feet.

Propagated by seed, it fruits irregularly in Canberra, apparently because of the sharp winter frosts which often kill the flowers.

Breaks into leaf earlier and retains its leaves longer than any of the other species of *Fraxinus* planted. Flowers in June.

Can be seen at the Kingston Shopping Centre and Hayes Crescent.

Fraxinus oxycarpa "Raywoodii"

Claret Ash

This is apparently a horticultural selection from seedlings on *F. oxycarpa*, and is commonly called Claret Ash. It withstands Canberra conditions rather well, particularly on better soils, and is a good round-headed tree rather like the species, but changing to a fine, deep claret colour in autumn. This is especially attractive with afternoon sunlight through the leaves.

Unlike the species, it fruits rarely. Propagated by budding, it is apt to be subject to wind damage under wet conditions and therefore must be used with some discretion and carefully pruned.

It is growing in Bougainville Street on the western side between Flinders Way and Furneaux Street. Also in Moore Street, Turner.

Fraxinus pennsylvanica Marsh

Red Ash

Distinguished from the other species planted by the very much larger leaflets which are about 3 inches or more long.

Native principally to the Atlantic Coast of the U.S.A.

Not suited to the climate, where it thrives only on the better soils and with irrigation. Under harder conditions if it does live, it comes into leaf late and sheds early and for that reason is not satisfactory for most purposes. A slow grower. The open crown and larger leaves may make it useful at times, but it is not to be recommended for the locality. Colours a little in autumn, giving orange-brown tints.

Has reached about 40 feet with a 25 feet crown spread.

Propagated by seed, it fruits occasionally. Seed responds to stratification to hasten germination.

Durville Crescent, Griffith.

Fraxinus velutina Torr.

Arizona Ash

A medium sized deciduous tree comparatively recently introduced.

Distinguished by the fine, dark-barked stems and rather acutely pointed leaflets.

Rather drought resistant and may be a good tree for Canberra.

Somewhat variable in form as it is raised from seed.

Fruits freely.

Planted in Newdegate Street, Deakin.

PAULOWNIA Sieb and Zucc.

A small genus confined to China.

Paulownia tomentosa (Thunb.) Steud.

Paulownia

Superficially more like Catalpa than any other species, distinct because of its large spreading leaves and the habit of carrying the formed flower buds through winter in terminal panicles.

Native to China. Much cultivated in Japan for the wood, which is used in making toys, small boxes and similar minor uses.

A particularly beautiful tree in flower, with a mass of mauve or violet flowers which appear just before the leaves.

It is not well suited to conditions here, which appear to be too dry, but it also suffers in some way apparently from the winter weather. This cannot be due to the extreme temperatures, as it will endure colder weather than that of Canberra. To a limited extent it is growing successfully in Paris as a street tree. The reason for the failure in Canberra needs further investigation.

Trees have reached about 20 feet in height, but do not persist, being subject to serious die-back.

Flowers and fruits fairly regularly and produces viable seed.

Easily raised from seed. Flowers mid-October.

There are seedlings only at present at Yarralumla Nursery.

CATAPA Scop.

A few species of deciduous trees with showy flowers found in North America and eastern Asia.

Catalpa speciosa Warder

Western Catalpa

Distinguished by the long acuminate leaves in whorls of three.

Native to the mid-west of the United States of America as far south as Arkansas. It is a fine round-headed deciduous tree with large leaves; with striking large panicles of creamy-white flowers with yellow, purple and brown spots in the corolla throat. It flowers in November and makes a fine show. The wood is brittle, and the tree therefore must be used with care and somewhat carefully pruned to retain its shape.

It is not well suited to the climate and thrives only on the better soils. It is subject to die-back if planted on poor soils and at the best is short lived—about 40 years. Nevertheless its distinctive leaves and splendid show of flowers make it a desirable tree for occasional planting.

It has reached about 50 feet with a crown spread of 40 feet.

Propagated by seed. Fruits every year and is very easily raised.

There is a clump at the Australian National University, near Froggatt Street.

GLOSSARY

- Acuminate*—Tapering; pointed.
- Apomixis*—Reproduction resembling that by seed but essentially vegetative.
- Appressed*—Flattened and lying close to the axis.
- Axil*—Upper angle between leaf and stem on which it is borne.
- Bipinnate*—A doubly divided compound leaf.
- Biserrate*—Having notched marginal teeth.
- Bract*—A modified leaf in whose axil a bud arises.
- Calyx*—The outer whorl of the flower, often green.
- Cambium*—The tissue from which secondary growth arises in stems and roots.
- Chlorotic*—Yellowish colouring of leaves generally due to deficiency.
- Clone*—A group of individuals propagated asexually from a single plant.
- Corymb*—*see* inflorescence.
- Cyme*—*see* inflorescence.
- Decorticate*—To shed bark.
- Dehisce*—To open (usually of fruits).
- Dioecious*—Having sexes separated on different plants.
- Dipterous*—Having two wings.
- Edaphic*—Relating to conditions of soil.
- Epicormic*—Of shoots; arising from a pre-existing but dormant bud.
- Exserted*—Protruding.
- Falcate*—Sickle-shaped.
- Fascicle*—A small bundle or tuft.
- Fastigate*—With branches parallel and erect; in pyramidal or conical form.
- Fissile*—Liable to split.
- Follicle*—A dry fruit of one carpel which splits on one side only to liberate the seeds.
- Funicle*—The connecting strand leading to the seed.
- Glaucousness*—The bluish colour of stems, leaves or other plant organs caused by waxy bloom.
- Hypanthium*—A modified floral receptacle.
- Inflorescence*—A flowering shoot.
- Raceme*—Inflorescence with a main axis bearing stalked flowers.
- Corymb*—Raceme with flowers borne at the same level due to elongation of the stalks of the lower flowers.
- Cyme*—Inflorescence where the main axis terminates in a flower and further development takes place by the growth of lateral branches.
- Panicle*—A compound raceme.
- Lanceolate*—Tapering to a sharp point and narrowing a little to the base, like the blade of a lance.
- Leguminous*—Applying to plants of the family Leguminosae and distinguished by having pods.
- Operculum*—The cap of the Eucalyptus flower bud.
- Orbicular*—Rounded, as applied to leaves.
- Palmate*—Applied to leaves divided into lobes arising from a common centre.
- Panicle*—*see* inflorescence.
- Pedicel*—Stalk of an individual flower of the inflorescence.
- Peduncle*—Stem of inflorescence.
- Penniveined*—With leaf veins featherlike.
- Petiole*—Stalk of leaf.
- Phyllode*—Flattened petiole of leaf which functions as a leaf, as in most Acacias.
- Pinna*—A leaflet of a pinnate leaf, i.e. a leaf which is divided in a feathery manner.
- Pistillate*—Bearing pistils or female reproductive organs.
- Pith*—Spongy tissue forming the central core in stems and branches of broad-leaved plants.
- Pneumatophore*—An aerating root.
- Polymorphic*—Showing a marked degree of variation in form.
- Pubescent*—Covered with soft hair.
- Pyriform*—Pear-shaped.
- Raceme*—*see* inflorescence.
- Scabrous*—Rough and scaly.

Stellate—Star-shaped.

Stomata—Minute pores in leaves.

Terete—Cylindrical.

Thalamus—The receptacle or that portion of the stem upon which the flower or inflorescence is actually borne.

Trifid—Three-lobed.

Turbinate—In the shape of a top.

Umbo—Swollen point of cone scale.

Villous—Hairy.

Whorl—Ring of leaves around the branch.

STREET TREE INDEX

STREET.	BOTANICAL NAME.	COMMON NAME.
A		
Abbott Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Agnew Street	<i>Platanus orientalis</i>	Plane
Ainslie Avenue	<i>Cedrus atlantica</i>	Atlas Cedar
Alexander Street	<i>Eucalyptus polyanthemos</i>	Red Box
Alinga Street	<i>Platanus orientalis</i>	Plane
Allambee Street	<i>Celtis australis</i>	Nettle Tree
Allara Street	<i>Quercus pedunculata</i>	English Oak
Allen Street	<i>Firmiana simplex</i>	Phoenix Tree
Allport Street	<i>Tilia americana</i>	American Linden
Alt Crescent	<i>Cupressus sempervirens</i> var. <i>stricta</i>	Roman Cypress
Amaroo Street	<i>Ulmus parvifolia</i>	Chinese Elm
Angas Street	<i>Liquidambar styraciflua</i>	Sweet Gum
Antill Street	<i>Quercus "hodgkinsonii"</i>	
Anzac Parade	<i>Celtis australis</i>	Nettle Tree
Archer Street	<i>Quercus borealis</i>	Northern Red Oak
Archibald Street	<i>Quercus palustris</i>	Pin Oak
Arinya Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Arkana Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Arthur Circle	<i>Platanus acerifolia</i>	London Plane
Arunta Street	<i>Quercus cerris</i>	Turkey Oak
Ashton Street	<i>Pistacia sinensis</i>	
Austin Street	<i>Ulmus parvifolia</i>	Chinese Elm
B		
Babbage Crescent	<i>Melia azederach</i>	White Cedar
Bagot Street	<i>Crataegus acerifolius</i>	Hawthorn
Bailey Place	<i>Morus alba</i>	White Mulberry
Baines Place	<i>Malus sp.</i>	Crab Apple
Baker Gardens	<i>Ulmus parvifolia</i>	Chinese Elm
Baker Street	<i>Gingko biloba</i>	Maidenhair Tree
Ballumbir Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Balmain Crescent	<i>Eucalyptus maculosa</i> (some <i>Euc. rubida</i>)	Red Spotted Gum (Candlebark)
Bancroft Street	<i>Quercus lusitanica</i>	Spanish Oak
Banjine Street	<i>Pyrus sorbus</i>	Service Tree
Banks Street	<i>Cedrus atlantica</i> with <i>Prunus pissardii</i>	Atlas Cedar, Cherry Plum
Banksia Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Banner Street	<i>Quercus lusitanica</i>	Spanish Oak
Bannister Gardens	<i>Acer negundo</i>	Box Elder
Bareena Street	<i>Prunus nigra</i>	Cherry Plum
Barkly Crescent	<i>Quercus palustris</i>	Pin Oak
Barney Street	<i>Fraxinus "raywoodii"</i>	Claret Ash
Barrallier Street	<i>Celtis australis</i>	Nettle Tree
Barrier Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Barron Street	<i>Celtis australis</i>	Nettle Tree
Bass Gardens	<i>Robinia pseudoacacia</i>	Black Locust
Bates Street	<i>Fraxinus velutina</i>	Arizona Ash
Batman Street	<i>Cedrus deodara</i> and <i>Cedrus atlantica</i> mixed	Atlas Cedar Deodar

STREET.	BOTANICAL NAME.	COMMON NAME.
Baudin Street	<i>Casuarina cunninghamiana</i> , <i>Grevillea robusta</i>	She-Oak Silky Oak White Mulberry Arizona Walnut
Bayley Street	<i>Morus alba</i>	
Bedford Street	<i>Juglans rupestris</i>	
Beeby Street	<i>Prunus campanulata</i>	
Belah Street	<i>Sophora japonica</i>	Japanese Pagoda Tree
Bell Street	<i>Crataegus crus-galli</i>	Thorn Cockspur
Belmore Gardens	<i>Betula alba</i>	Silver Birch
Bent Street	<i>Quercus toza</i>	
Bentham Street	<i>Robinia pseudoacacia</i>	Black Locust
Berrigan Crescent	<i>Crataegus oxycantha</i> var. <i>rosea</i>	Hawthorn
Berry Street	<i>Eucalyptus cinerea</i>	Argyle Apple
Black Street	<i>Quercus "hodgkinsonii"</i>	
Blackall Street	<i>Quercus pedunculata</i>	English Oak
Blackbutt Street	<i>Euc. polyanthemus</i>	Red Box
Blacket Street	<i>Quercus palustris</i>	Pin Oak
Blakely Row	<i>Fraxinus "raywoodii"</i>	Claret Ash
Blamey Crescent	<i>Platanus orientalis</i>	Plane
Blaxland Crescent	<i>Quercus lusitanica</i>	Spanish Oak
Bligh Street	<i>Quercus lusitanica</i>	Spanish Oak
Boldrewood Street	<i>Platanus acerifolia</i>	London Plane
	<i>Quercus palustris</i>	Pin Oak
Bonney Street	<i>Quercus ilex</i>	Holm Oak
Bonython Street	<i>Quercus cerris</i>	Turkey Oak
Boobialla Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Boolimba Crescent	<i>Quercus palustris</i>	Pin Oak
Booroondara Street	<i>Quercus lusitanica</i>	Spanish Oak
Boree Place	<i>Crataegus "mexicana seedling"</i>	Hawthorn
Boronia Drive	<i>Fraxinus velutina</i>	Arizona Ash
Bougainville Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
	<i>Fraxinus "raywoodii"</i>	Claret Ash
	<i>Liquidambar styraciflua</i>	Sweet Gum
Bourke Street	<i>Castanea sativa</i>	Spanish Chestnut
	<i>Prunus nigra</i>	Cherry Plum
Boyd Street	<i>Liriodendron tulipifera</i>	Tulip Tree
Bremer Street	<i>Fraxinus "raywoodii"</i>	Claret Ash
	<i>Fraxinus oxycarpa</i>	Desert Ash
Brigalow Street	<i>Quercus palustris</i>	Pin Oak
	<i>Platanus orientalis</i>	Plane
Brisbane Avenue	<i>Prunus pissardii</i>	Flowering Plum
	<i>Eucalyptus maculosa</i>	Red Spotted Gum
	<i>Ulmus vegeta</i> (centre)	
Brockman Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Broome Crescent	<i>Prunus nigra</i>	Cherry Plum
Broughton Street	<i>Cedrus atlantica</i>	Atlas Cedar
Brown Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Bunda Street	<i>Platanus orientalis</i>	Oriental Plane
Bundeela Street	<i>Quercus macrocarpa</i>	Burr Oak
Bungey Street	<i>Sophora japonica</i>	Japanese Pagoda Tree
Burke Crescent	<i>Celtis australis</i>	Nettle Tree
Bursaria Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Burt Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Busby Street	<i>Fraxinus "raywoodii"</i>	Claret Ash
Buxton Street	<i>Morus alba</i>	White Mulberry
C		
Cairns Street	<i>Sophora japonica</i>	Japanese Pagoda Tree
Caladenia Street	<i>Quercus engelmannii</i>	Engelmann Oak
Caley Crescent	<i>Fraxinus oxycarpa</i>	Desert Ash

STREET.	BOTANICAL NAME.	COMMON NAME.
Calvert Street	<i>Fraxinus</i> "raywoodii"	Claret Ash
Cabbage Street	<i>Acer negundo</i>	Box Elder
Campbell Street	<i>Eucalyptus bicostata</i>	Eurabbie
	<i>Quercus lusitanica</i>	Spanish Oak
Canberra Avenue	Mixed deciduous and evergreen planting— <i>Ulmus</i> , <i>Quercus Cedrus, Casuarina, Eucalyptus</i>	
Canterbury Crescent	<i>Fraxinus pennsylvanica</i>	Red Ash
Cape Street	<i>Quercus palustris</i>	Pin Oak
Captain Cook Crescent	<i>Eucalyptus maculosa</i> (Central plantation)	Red Spotted Gum
	<i>Cedrus atlantica</i>	Atlas Cedar
Carmichael Street	<i>Pistacia sinensis</i>	
Carnegie Crescent	<i>Quercus palustris</i>	Pin Oak
Carrington Street	<i>Ulmus parvifolia</i>	Chinese Elm
Carstensz Street	<i>Koelreuteria paniculata</i>	Golden Rain Tree
Cassinia Street	<i>Sorbus domestica</i>	Service Tree
Chaffey Crescent	<i>Prunus nigra</i>	Cherry Plum
Challis Street	<i>Platanus occidentalis</i>	Buttonwood
Chapman Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Charlotte Street	<i>Eucalyptus cinerea</i>	Argyle Apple
Chauvel Street	<i>Zelkova serrata</i>	Keyaki
Childers Street	<i>Eucalyptus blakelyi</i>	Red Gum
Chisholm Street	<i>Celtis australis</i>	Nettle Tree
Chowne Street	<i>Juglans nigra</i>	Black Walnut
Clarke Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Clianthus Street	<i>Quercus lobata</i>	Valley Oak
Cobb Crescent	<i>Fraxinus oxycarpa</i>	Desert Ash
Cockle Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Commonwealth Avenue	<i>Cedrus atlantica</i>	Atlas Cedar
	<i>Cedrus deodara</i>	Deodar
	<i>Ulmus parvifolia</i>	Chinese Elm
Condamine Street	<i>Quercus macrocarpa</i>	Burr Oak
Constitution Avenue	<i>Robinia pseudoacacia</i>	Black Locust
	<i>Populus nigra</i> var. <i>italica</i>	Lombardy Poplar
	<i>Cupressus sempervirens</i> var. <i>stricta</i>	Roman Cypress
Coolac Place	<i>Prunus mume</i>	Japanese Apricot
Coolibah Crescent	<i>Fraxinus oxycarpa</i>	Desert Ash
Cooyong Street	<i>Celtis australis</i>	Nettle Tree
Coral Place	<i>Malus</i> sp.	Crab Apple
Coranderrk Street	<i>Platanus orientalis</i>	Plane
	<i>Ulmus</i> sp.	
Correa Street	<i>Quercus cerris</i>	Turkey Oak
Corroboree Park	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Cowper Street	<i>Celtis australis</i>	Nettle Tree
	<i>Platanus acerifolia</i>	London Plane
Cox Street	<i>Cedrus atlantica</i>	Atlas Cedar
Creswell Street	<i>Quercus palustris</i>	Pin Oak
Cunningham Street	<i>Liquidambar styraciflua</i>	Sweet Gum
Currie Crescent	<i>Cedrus atlantica</i>	Atlas Cedar
Currong Street	<i>Cedrus atlantica</i>	Atlas Cedar

D

Dalrymple Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Daly Street	<i>Malus spectabilis</i>	Chinese Crab Apple
Dampier Crescent	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Darling Street	<i>Celtis australis</i>	Nettle Tree
Davenport Street	<i>Crataegus oxycantha</i> var. <i>rosea</i>	Hawthorn
	<i>Quercus cerris</i>	Turkey Oak
	<i>Quercus lusitanica</i>	Spanish Oak

STREET.	BOTANICAL NAME.	COMMON NAME.
Davey Street	<i>Betula alba</i>	Silver Birch
David Street	<i>Eucalyptus polyanthemos</i>	Red Box
Dawes Street	<i>Cedrus deodara</i>	Deodar
Deane Street	<i>Koelreuteria paniculata</i>	Golden Rain Tree
De Burgh Street	<i>Quercus cerris</i>	Turkey Oak
De Chair Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Denman Street	<i>Quercus bicolor</i>	Swamp Oak
Derrick Street	<i>Eucalyptus cinerea</i>	Argyle Apple
Dianella Street	<i>Quercus cerris</i>	Turkey Oak
Dibbs Street	<i>Pistacia sinensis</i>	
Dirrawan Gardens	<i>Platanus acerifolia</i>	London Plane
Discovery Street	<i>Quercus cerris</i>	Turkey Oak
Dominion Circuit	<i>Cedrus atlantica</i>	Atlas Cedar
	<i>Cedrus deodara</i>	Deodar
	<i>Eucalyptus rubida</i>	Candlebark
Donaldson Street	<i>Celtis australis</i>	Nettle Tree
Doonkuna Street	<i>Quercus ilex</i>	Holm Oak
	<i>Quercus robur</i>	English Oak
Dooring Street	<i>Quercus "hodgkinsonii"</i>	
Drake Street	<i>Cupressus sempervirens</i> var. <i>stricta</i>	Roman Cypress
Drummond Row	<i>Crataegus</i> "mexicana seedling"	Hawthorn
Dryandra Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Ducane Street	<i>Eucalyptus microcarpa</i>	Grey Box
	<i>Eucalyptus micrantha</i>	Scribbly Gum
	<i>Eucalyptus rubida</i>	Candlebark
Duffy Street	<i>Eucalyptus melliodora</i>	Yellow Box
	<i>Fraxinus velutina</i>	Arizona Ash
Dugan Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Dumaresq Street	<i>Quercus mirbeckii</i>	Algerian Oak
Durville Crescent	<i>Fraxinus pennsylvanica</i>	Red Ash
Dutton Street	<i>Betula alba</i>	Silver Birch
Dyson Street	<i>Fraxinus rotundifolia</i>	
E		
Eady Street	<i>Cercidiphyllum japonicum</i>	Katsura
Earle Street	<i>Crataegus</i> "mexicana seedling"	Hawthorn
Ebden Street	<i>Eucalyptus melliodora</i>	Yellow Box
	<i>Quercus palustris</i>	Pin Oak
Edinburgh Avenue	<i>Gleditsia, Ulmus</i>	
	<i>Sorbus aucuparia</i>	
	<i>Libocedrus</i> mixed	
Edmondson Street	<i>Fraxinus "raywoodii"</i>	Claret Ash
Eighteenth Street	<i>Fraxinus ornus</i>	Flowering Ash
Eighth Street	<i>Prunus moseri</i>	Cherry Plum
Elder Street	<i>Quercus pedunculata</i>	English Oak
Eleventh Street	<i>Prunus nigra</i>	Cherry Plum
Elimatta Street	<i>Cedrus atlantica</i>	Atlas Cedar
Ellery Circuit	<i>Eucalyptus blakelyi</i>	Red Gum
Elliott Place	<i>Prunus pissardii</i>	Plum
Elliott Street	<i>Eucalyptus pauciflora</i>	Snow Gum
Elouera Street	<i>Quercus lusitanica</i>	Lusitanian Oak
Empire Circuit	<i>Robinia pseudoacacia</i>	Black Locust
	<i>Cedrus atlantica</i>	Atlas Cedar
	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Esperance Street	<i>Quercus "hodgkinsonii"</i>	
Euree Street	<i>Cedrus atlantica</i>	Atlas Cedar
Evans Crescent	<i>Quercus palustris</i>	Pin Oak
Ewart Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Eyre Street	<i>Celtis australis</i>	Nettle Tree

STREET.	BOTANICAL NAME.	COMMON NAME.
F		
Fairbridge Crescent	<i>Liquidambar styraciflua</i>	Sweet Gum
Fairfax Street	<i>Juglans nigra</i>	Black Walnut
Farrer Street	<i>Platanus acerifolia</i>	London Plane
Faunce Crescent	<i>Eucalyptus maculosa</i>	Red Spotted Gum
	<i>Fraxinus oxycarpa</i>	Desert Ash
Favenc Circle	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Fawcner Street	<i>Quercus palustris</i>	Pin Oak
Feakes Place	<i>Fraxinus excelsior</i>	English Ash
Fergusson Crescent	<i>Quercus gambellii</i>	Gambell Oak
	<i>Malus sp.</i>	Crab Apple
Fifteenth Street	<i>Celtis occidentalis</i>	Hackberry
Fifth Street	<i>Prunus blireiana</i>	Cherry Plum
Finn Street	<i>Koelreuteria paniculata</i>	Golden Rain Tree
Finniss Crescent	<i>Quercus mirbeckii</i>	Algerian Oak
First Street	<i>Prunus nigra</i>	Cherry Plum
Fisher Street	<i>Malus sp.</i>	Crab Apple
Fitzgerald Street	<i>Quercus palustris</i>	Pin Oak
Fitzroy Street	<i>Ulmus sp., Prunus pissardii mixed</i>	
Flinders Way	<i>Prunus pissardii</i>	Cherry Plum
	<i>Crataegus oxyacantha</i> var. <i>rosea</i>	Hawthorn
Forbes Street	<i>Quercus lusitanica</i>	Lusitanian Oak
Fortitude Street	<i>Prunus nigra</i>	Cherry Plum
Fourteenth Street	<i>Koelreuteria paniculata</i>	Golden Rain Tree
Fourth Street	<i>Prunus blireana</i>	Plum
Foveaux Street	<i>Celtis australis</i>	Nettle Tree
Francis Street	<i>Quercus cerris</i>	Turkey Oak
Franklin Street	<i>Liquidambar styraciflua</i>	Sweet Gum
	<i>Quercus palustris</i>	Pin Oak
	<i>Prunus pissardii</i>	Plum
Fraser Place	<i>Crataegus acerifolia</i>	Hawthorn
Froggatt Street	<i>Quercus lusitanica</i>	
	<i>Platanus acerifolia</i>	London Plane
Frome Street	<i>Ulmus parvifolia</i>	Chinese Elm
Furneaux Street	<i>Crataegus oxyacantha</i> var. <i>rosea</i>	Hawthorn
	<i>Eucalyptus macarthurii</i>	Camden Woolly Butt
	<i>Platanus acerifolia</i>	London Plane
G		
Garling Street	<i>Fraxinus velutina</i>	Arizona Ash
Gawler Crescent	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Geelong Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Geerilong Gardens	<i>Platanus acerifolia</i>	London Plane
Gellibrand Street	<i>Eucalyptus cinerea</i>	Argyle Apple
Getting Crescent	<i>Quercus cerris</i>	Turkey Oak
Giles Street	<i>Cedrus atlantica</i>	Atlas Cedar
Gill Street	<i>Phellodendron amurense</i>	Cork Tree
Gillen Street	<i>Morus alba</i>	White Mulberry
Gipps Street	<i>Robinia pseudoacacia</i> and <i>Libocedrus decurrens</i>	Black Locust
		Incense Cedar
Girraheen Street	<i>Cedrus deodara</i>	Deodar
Glossop Crescent	<i>Eucalyptus polyanthemus</i>	Red Box
Glover Street	<i>Sophora japonica</i>	Japanese Pagoda Tree
Godfrey Street	<i>Eucalyptus pauciflora</i>	Snow Gum
Golden Grove	<i>Fraxinus oxycarpa</i>	Desert Ash
Goodwin Street	<i>Quercus palustris</i>	Pin Oak
Gooreen Street	<i>Robinia pseudoacacia</i>	Black Locust
Gordon Street	<i>Ulmus procera</i>	English Elm

STREET.	BOTANICAL NAME.	COMMON NAME.
Gormanston Crescent	<i>Sorbus domestica</i>	Service Tree
Gosse Street	<i>Quercus "hodgkinsonii"</i>	
Gould Street	<i>Quercus lusitanica</i>	Spanish Oak
Goyder Street	<i>Quercus palustris</i>	Pin Oak
Grant Crescent	<i>Ulmus americana</i>	American Elm
Green Street	<i>Pistacia sinensis</i>	
Greenhood Place	<i>Sorbus domestica</i>	Service Tree
Greenway Street	<i>Eucalyptus pauciflora</i>	Snow Gum
Gregory Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Grevillea Street	<i>Prunus campanulata</i>	
Grey Street	<i>Quercus palustris</i>	Pin Oak
	<i>Sequoia gigantea</i>	Big Tree
Grimes Street	<i>Cedrus deodara</i>	Deodar
Guilfoyle Street	<i>Quercus palustris</i>	Pin Oak
Gunn Street	<i>Quercus pedunculata</i>	English Oak
Guthrie Street	<i>Liquidambar styraciflua</i>	Sweet Gum
H		
Hack Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Hackett Gardens	<i>Ulmus parvifolia</i>	Chinese Elm
Hacking Crescent	<i>Quercus "hodgkinsonii"</i>	
Hakea Crescent	<i>Sorbus domestica</i>	Service Tree
Hale Crescent	<i>Ulmus parvifolia</i>	Chinese Elm
Hall Street	<i>Quercus palustris</i>	Pin Oak
Hamelin Crescent	<i>Eucalyptus cinerea</i>	Argyle Apple
Hamilton Row	<i>Crataegus "mexicana seedling"</i>	Hawthorn
Hampton Circuit	<i>Crataegus oxyacantha</i> var. <i>rosea</i>	Hawthorn
Hann Street	<i>Ulmus parvifolia</i>	Chinese Elm
Hannan Crescent	<i>Acer negundo</i>	Box Elder
Hardman Street	<i>Acer negundo</i>	Box Elder
Hargraves Crescent	<i>Grevillea robusta</i>	Silky Oak
Hart Street	<i>Sophora japonica</i>	Japanese Pagoda Tree
Hartley Street	<i>Ulmus parvifolia</i>	Chinese Elm
Hartog Street	<i>Pistacia sinensis</i>	
Hassall Street	<i>Sophora japonica</i>	
Hawdon Street	<i>Quercus cerris</i>	Japanese Pagoda Tree
	<i>Liriodendron tulipifera</i> (N. of Officer Street)	Turkey Oak
Hay Street	<i>Crataegus crus-galli</i>	Tulip Tree
Hayes Crescent	<i>Fraxinus oxycarpa</i>	Cockspur Thorn
Helemon Street	<i>Quercus cerris</i>	Desert Ash
Hemmant Street	<i>Eucalyptus cinerea</i>	Turkey Oak
Henty Street	<i>Eucalyptus cinerea</i>	Argyle Apple
Herbert Crescent	<i>Eucalyptus polyanthemos</i>	Argyle Apple
Hicks Street	<i>Quercus coccinea</i>	Red Box
Higgins Crescent	<i>Grevillea robusta</i>	Red Oak
Hill Corner	<i>Sophora japonica</i>	Silky Oak
Hobart Avenue	<i>Eucalyptus bicostata</i>	Japanese Pagoda Tree
	<i>Eucalyptus maculosa</i> (sides)	Eurabbie
Hobbs Street	<i>Eucalyptus pauciflora</i>	Red Spotted Gum
Hobson Place	<i>Malus spectabilis</i>	Snow Gum
Hoddle Gardens	<i>Acer negundo</i>	Crab Apple
Hodgkinson Street	<i>Crataegus "mexicana seedling"</i>	Box Elder
Holder Street	<i>Fraxinus "raywoodii"</i>	Hawthorn
Holmes Crescent	<i>Eucalyptus maculosa</i>	Claret Ash
Hooker Street	<i>Celtis australis</i>	Red Spotted Gum
Hope Street	<i>Quercus mirbeckii</i>	Nettle Tree
Hopetoun Circuit	<i>Eucalyptus maculosa</i>	Algerian Oak
Hotham Crescent	<i>Quercus palustris</i>	Red Spotted Gum
Hovea Street	<i>Quercus cerris</i>	Pin Oak
Hovell Street	<i>Eucalyptus maculosa</i>	Turkey Oak
		Red Spotted Gum

STREET.	BOTANICAL NAME.	COMMON NAME.
Howitt Street	<i>Quercus palustris</i>	Pin Oak
Howse Street	<i>Eucalyptus pauciflora</i>	Snow Gum
Hunter Street	<i>Celtis australis</i>	Nettle Tree
Hutchins Street	<i>Quercus palustris</i>	Pin Oak
Hutt Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Hutton Street	<i>Quercus palustris</i>	Pin Oak
I		
Ijong Street	<i>Quercus "hodgkinsonii"</i>	
Iluka Street	<i>Platanus acerifolia</i>	London Plane
Investigator Street	<i>Lipuidambar styraciflua</i>	Sweet Gum
Ipima Street	<i>Quercus lusitanica</i>	Lusitanian Oak
Ipswich Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Irwin Street	<i>Pistacia sinensis</i>	
Isa Street	<i>Eucalyptus pauciflora</i>	Snow Gum
	<i>Melia azedarach</i>	White Cedar
J		
Jacka Crescent	<i>Sophora japonica</i>	Japanese Pagoda Tree
Jansz Crescent	<i>Quercus "hodgkinsonii"</i>	
Jardine Street	<i>Quercus lusitanica</i>	Lusitanian Oak
Jarraah Street	<i>Quercus serrata</i>	
Jerrabomberra Avenue	<i>Mixed Eucalyptus, Acacia, Quercus</i>	
Jersey Street	<i>Crataegus "mexicana seedling"</i>	Hawthorn
Jervois Street	<i>Phellodendron amurense</i>	Cork Tree
Johnson Street	<i>Betula pendula</i>	Silver Birch
K		
Karlool Street	<i>Prunus nigra</i>	Plum
Karri Street	<i>Celtis tourneforti</i>	
Kaye Street	<i>Ulmus parvifolia</i>	Chinese Elm
Kendall Street	<i>Populus deltoides</i>	Cottonwood
Kennedy Street	<i>Celtis australis</i>	Nettle Tree
	<i>Quercus palustris</i>	Pin Oak
Kent Street	<i>Eucalyptus cinerea</i>	Argyle Apple
Kernot Street	<i>Sophora japonica</i>	Japanese Pagoda Tree
Key Street	<i>Eucalyptus pauciflora</i>	Snow Gum
King Edward Terrace	<i>Quercus, Platanus spec.</i>	Oak, London Plane,
	<i>Libocedrus decurrens</i>	Incense Cedar
King George Terrace	<i>Prunus sp.</i>	
	<i>Cupressus arizonica</i>	Arizona Cypress
	<i>Eucalyptus bicostata</i>	Blue Gum
	<i>Eucalyptus maideni</i>	Maiden's Gum
Kings Avenue	<i>Ulmus parvifolia</i>	Chinese Elm
	<i>Cedrus atlantica</i>	Atlas Cedar
	<i>Cedrus deodara</i>	Deodar
	<i>Ulmus campestris</i>	English Elm
Kingsley Street	<i>Quercus bicolor</i>	Swamp Oak
Kintore Crescent	<i>Platanus acerifolia</i>	London Plane
Knibbs Street	<i>Liquidambar styraciflua</i>	Sweet Gum
Kootara Crescent	<i>Eucalyptus maculosa</i>	Red Spotted Gum
L		
Lalor Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Lambert Street	<i>Eucalyptus cinerea</i>	Argyle Apple
Lamington Street	<i>Eucalyptus cinerea</i>	Argyle Apple
Landsborough Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum

STREET.	BOTANICAL NAME.	COMMON NAME.
Lang Street	<i>Koelreuteria paniculata</i>	Golden Rain Tree
Langton Crescent	Mixed <i>Populus</i> , <i>Quercus</i> , <i>Prunus</i> , <i>Ulmus</i>	Poplar, Oak, Cherry, Plum, Elm
La Perouse Street	<i>Quercus palustris</i> <i>Prunus pissardii</i> <i>Crataegus oxyacantha</i> var. <i>rosea</i>	Pin Oak Cherry Plum Hawthorn
Lawson Crescent	<i>Quercus pedunculata</i>	English Oak
Lea Place	<i>Prunus pissardii</i>	Cherry Plum
Legge Street	<i>Eucalyptus maculos.</i>	Red Spotted Gum
Lefroy Street	<i>Quercus palustris</i>	Pin Oak
Le Hunte Street	<i>Quercus bicolor</i>	Swamp Oak
Leichhardt Street	<i>Celtis australis</i> <i>Quercus palustris</i>	Nettle Tree Pin Oak
Lennox Crossing	<i>Populus alba</i> <i>Ulmus procera</i>	White Poplar English Elm
Leslie Street	<i>Gleditsia triacanthos</i> <i>Crataegus oxyacantha</i> var. <i>rosea</i>	Honey Locust Hawthorn
Lewin Street	<i>Quercus bicolor</i>	Swamp Oak
Lewis Street	<i>Cupressus sempervirens</i> var. <i>stricta</i>	Roman Cypress
Lilley Street	<i>Prunus nigra</i>	Cherry Plum
Limestone Avenue	Mixed <i>Eucalyptus</i> species including <i>bicostata</i> , <i>macarthurii</i> , <i>rubida</i> , <i>microcarpa</i> with <i>Brachychiton</i> <i>populneum</i>	
Lindsay Street	<i>Eucalyptus pauciflora</i>	Snow Gum
Lister Crescent	<i>Cupressus sempervirens</i> var. <i>stricta</i> <i>Prunus blireiana</i>	Roman Cypress Cherry Plum
Lithgow Street	<i>Eucalyptus maculosa</i> <i>Fraxinus oxycarpa</i>	Red Spotted Gum Desert Ash
Liversidge Street	<i>Ulmus procera</i> <i>Populus alba</i> <i>Cedrus atlantica</i>	English Elm Silver Poplar Atlas Cedar
Lobelia Street	<i>Quercus douglasii</i>	Douglas Oak
Loch Street	<i>Fraxinus</i> "raywoodii"	Claret Ash
Lockyer Street	<i>Cedrus atlantica</i>	Atlas Cedar
Loftus Street	<i>Quercus bicolor</i>	Swamp Oak
Logan Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Lomandra Street	<i>Prunus nigra</i> and <i>Prunus pissardii</i>	Cherry Plum
Longstaff Street	<i>Quercus cerris</i>	Turkey Oak
Lonsdale Street	<i>Platanus acerifolia</i>	London Plane
Looranah Street	<i>Koelreuteria paniculata</i>	Golden Rain Tree
Lord Street	<i>Acer negundo</i>	Box Elder
Lowanna Street	<i>Juglans nigra</i>	Black Walnut
Lowrie Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Lumeah Street	<i>Acer negundo</i> <i>Quercus lusitanica</i>	Box Elder
Lyell Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Mc., Mac.		
Macarthur Avenue	<i>Quercus cerris</i> <i>Eucalyptus cinerea</i> <i>Eucalyptus bicostata</i> (centre)	Turkey Oak Argyle Apple Eurabbie
Macarthur Place	<i>Liquidambar acerifolia</i>	London Plane
Macartney Crescent	<i>Ulmus parvifolia</i>	Chinese Elm
McCaughy Street	<i>Quercus lusitanica</i> <i>Celtis australis</i>	Lusitanian Oak Nettle Tree
McColl Street	<i>Crataegus</i> "mexicana seedling"	Hawthorn
McCoy Circuit	<i>Cedrus deodara</i>	Deodar
MacDonnell Street	<i>Liquidambar styraciflua</i>	Sweet Gum
MacGillivray Street	<i>Fraxinus velutina</i>	Arizona Ash

STREET.	BOTANICAL NAME.	COMMON NAME.
MacGregor Street	<i>Quercus gambellii</i>	Gambell Oak
McGowan Street	<i>Koelreuteria paniculata</i>	Golden Rain Tree
McIntyre Street	<i>Eucalyptus pauciflora</i>	Snow Gum
Mackennal Street	<i>Quercus "hodgkinsonii"</i>	
McKinlay Street	<i>Celtis australis</i>	Nettle Tree
Macleay Street	<i>Quercus palustris</i>	Pin Oak
McMillan Circle	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Macpherson Street	<i>Sophora japonica</i>	Japanese Pagoda Tree
Macquarie Street	<i>Quercus lusitanica</i>	Lusitanian Oak
	<i>Eucalyptus rubida</i>	Candlebark
M		
Maiden Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Majura Avenue	<i>Quercus cerris</i>	Turkey Oak
Manuka Circle	<i>Cedrus atlantica</i>	Atlas Cedar
Marcus Clarke Street	<i>Quercus lusitanica</i>	Lusitanian Oak
Marsden Street	<i>Quercus "hodgkinsonii"</i>	
Masson Street	<i>Fraxinus "raywoodii"</i>	Claret Ash
Matina Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
	<i>Cedrus atlantica</i>	Atlas Cedar
Maxwell Street	<i>Quercus montana</i>	
Meehan Gardens	<i>Acer negundo</i>	Box Elder
Melba Street	<i>Platanus orientalis</i>	Oriental Plane
Melbourne Avenue	<i>Eucalyptus maculosa</i>	Red Spotted Gum
	<i>Eucalyptus melliodora</i> (centre)	Yellow Box
Merrit Place	<i>Crataegus oxycantha</i> var. <i>rosea</i>	Hawthorn
Miller Street	<i>Eucalyptus blakelyi</i>	Red Gum
	<i>Quercus palustris</i>	Pin Oak
Mindarie Street	<i>Quercus bicolor</i>	Swamp Oak
Mitchell Street	<i>Betula pendula</i>	Silver Birch
Monaro Crescent	<i>Celtis australis</i>	Nettle Tree
	<i>Prunus blireiana</i>	Cherry Plum
	<i>Salix vitellina</i>	Golden Osier
	<i>Quercus palustris</i>	Pin Oak
Moncrieff Street	<i>Cladrasia lutea</i>	Yellow Wood
Moore Street	<i>Fraxinus "raywoodii"</i>	Claret Ash
Moorhouse Street	<i>Quercus cerris</i>	Turkey Oak
Moresby Street	<i>Quercus palustris</i>	Pin Oak
Morphett Street	<i>Quercus palustris</i>	Pin Oak
Mort Street	<i>Acer negundo</i>	Box Elder
	<i>Cedrus deodara</i>	Deodar
Moten Street	<i>Betula pendula</i>	Silver Birch
Mueller Street	<i>Celtis australis</i>	Hackberry
Mugga Way	<i>Eucalyptus maculosa</i>	Red Spotted Gum
	<i>Eucalyptus rubida</i>	Candlebark
Mulga Street	<i>Acer negundo</i>	Box Elder
Murdoch Street	<i>Quercus pedunculata</i> v. <i>fastigata</i>	Upright English Oak
Murray Street	<i>Populus alba</i> (centre),	Silver Poplar
	<i>Quercus "hodgkinsonii"</i>	
Musgrave Street	<i>Ulmus parvifolia</i>	Chinese Elm
Myall Street	<i>Sophora japonica</i>	Japanese Pagoda Tree
N		
Narambi Street	<i>Platanus orientalis</i>	Plane
Nardoo Crescent	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Nares Crescent	<i>Sophora japonica</i>	Japanese Pagoda Tree
Nathan Street	<i>Fraxinus oxycarpa</i>	Desert Ash

STREET.	BOTANICAL NAME.	COMMON NAME.
National Circuit	<i>Quercus macrocarpa</i>	Burr Oak
Newdegate Street	<i>Quercus bicolor</i>	Swamp Oak
Newlands Street	<i>Fraxinus velutina</i>	Arizona Ash
	<i>Quercus palustris</i>	Pin Oak
	<i>Libocedrus decurrens</i>	Incense Cedar
Newman Street	<i>Quercus robur</i>	English Oak
N.S.W. Crescent	<i>Quercus palustris</i>	Pin Oak
Nicholson Crescent	<i>Eucalyptus blakelyi</i>	Red Gum
Nineteenth Street	<i>Fraxinus ornus</i>	Flowering Ash
Ninth Street	<i>Prunus nigra</i>	Cherry Plum
Normanby Crescent	<i>Fraxinus "raywoodii"</i>	Claret Ash
Northbourne Avenue	<i>Eucalyptus maculosa</i>	Red Spotted Gum
	<i>Crataegus "mexicana seedling"</i>	Hawthorn
	<i>Eucalyptus blakelyi</i> (centre)	Red Gum
Northcote Crescent	<i>Prunus campanulata</i>	
Novar Street	<i>Cedrus atlantica</i>	Atlas Cedar
Nuyts Street	<i>Fraxinus "raywoodii"</i>	Claret Ash
Nyeena Place	<i>Parrotia persica</i>	Parrotia
O		
O'Connell Street	<i>Ulmus parvifolia</i>	Chinese Elm
Officer Crescent	<i>Quercus lusitanica</i>	Lusitanian Oak
Officer Place	<i>Crataegus oxyacantha</i> var. <i>rosea</i>	Hawthorn
Oliver Street	<i>Prunus moseri</i>	Cherry Plum
Ormond Street	<i>Eucalyptus pauciflora</i>	Snow Gum
Ovens Street	<i>Ulmus parvifolia</i>	Chinese Elm
Owen Crescent	<i>Acer monspessulanum</i>	Montpelier Maple
Owen Street	<i>Eucalyptus leucoxydon</i>	South Australian Blue Gum
Oxley Street	<i>Cedrus atlantica</i>	Atlas Cedar
P		
Padbury Place	<i>Prunus blireiana</i>	Cherry Plum
Padbury Street	<i>Quercus cerris</i>	Turkey Oak
Paterson Street	<i>Celtis australis</i>	Nettle Tree
	<i>Prunus pissardii</i>	Cherry Plum
	<i>Eucalyptus maculosa</i>	Red Spotted Gum
	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Patey Street	<i>Quercus bicolor</i>	Swamp Oak
Pedder Street	<i>Crataegus oxyacantha</i> var. <i>rosea</i>	Hawthorn
Peel Street	<i>Fraxinus pennsylvanica</i>	Red Ash
Pelsart Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Perth Avenue	<i>Platanus acerifolia</i>	London Plane
Petrie Street	<i>Prunus mume</i>	Japanese Apricot
Pigot Street	<i>Juglans nigra</i>	Black Walnut
Piper Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Pirie Street	<i>Acer negundo</i>	Box Elder
Price Place	<i>Prunus nigra</i>	Cherry Plum
Pullen Street	<i>Cercidiphyllum japonicum</i>	Katsura
Q		
Quandong Street	<i>Quercus "hodgkinsonii"</i>	Pin Oak
Queen Victoria Terrace	<i>Quercus palustris</i>	Silver Poplar
	<i>Populus alba</i>	Maiden's Gum
	<i>Eucalyptus maideni</i>	Pin Oak
Quick Street	<i>Quercus palustris</i>	Service Tree
Quinn Street	<i>Sorbus domestica</i>	
Quiros Street	<i>Amygdalus pollardii</i>	

STREET.	BOTANICAL NAME.	COMMON NAME.
R		
Randell Street	<i>Sophora japonica</i>	Japanese Pagoda Tree
Rankin Street	<i>Koelreuteria paniculata</i>	Golden Rain Tree
Rawson Street	<i>Prunus padus</i>	Bird Cherry
	<i>Eucalyptus pauciflora</i>	Snow Gum
Raymond Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Rennie Street	<i>Prunus campanulata</i>	
Ridley Street	<i>Celtis australis</i>	Nettle Tree
Robe Street	<i>Pistacia sinensis</i>	
Robinson Street	<i>Sophora japonica</i>	Japanese Pagoda Tree
Rodway Street	<i>Fraxinus excelsior</i>	English Ash
Roe Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Ross Street	<i>Koelreuteria paniculata</i>	Golden Rain Tree
Rous Crescent	<i>Quercus mirbeckii</i>	Algerian Oak
Rudd Street	<i>Celtis australis</i>	Nettle Tree
Ruse Street	<i>Pistacia sinensis</i>	
Rutherford Crescent	<i>Crataegus oxyacantha</i> var. <i>rosea</i>	Hawthorn
Ryrie Street	<i>Fraxinus oxycarpa</i>	Desert Ash
S		
Savige Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Schlich Street	<i>Quercus palustris</i>	Pin Oak
Schomburgk Street	<i>Eucalyptus cinerea</i>	Argyle Apple
Scott Street	<i>Fraxinus pennsylvanica</i>	Red Ash
Scrivener Street	<i>Quercus "hodgkinsonii"</i>	
Second Street	<i>Prunus nigra</i>	Cherry Plum
Seventeenth Street	<i>Prunus nigra</i>	Cherry Plum
Seventh Street	<i>Prunus nigra</i>	Cherry Plum
Sherbrooke Street	<i>Celtis australis</i>	Nettle Tree
Shortland Crescent	<i>Quercus cerris</i>	Turkey Oak
Sixteenth Street	<i>Prunus nigra</i>	Cherry Plum
Sixth Street	<i>Prunus nigra</i>	Cherry Plum
Solander Place	<i>Casuarina cunninghamiana</i>	She-Oak
Somers Crescent	<i>Liquidambar styraciflua</i>	Sweet Gum
Sorell Street	<i>Cedrus atlantica</i>	Atlas Cedar
	<i>Prunus pissardii</i>	Cherry Plum
Spencer Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Sprent Street	<i>Quercus palustris</i>	Pin Oak
State Circle	<i>Fraxinus oxycarpa</i>	Desert Ash
Stawell Street	<i>Ulmus parvifolia</i>	Chinese Elm
Stephen Street	<i>Fraxinus "raywoodii"</i>	Claret Ash
Stockdale Street	<i>Platanus acerifolia</i>	London Plane
Stokes Street	<i>Crataegus oxyacantha</i> var. <i>rosea</i>	Hawthorn
Stonehaven Crescent	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Stradbroke Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Strahan Row	<i>Crataegus "mexicana seedling"</i>	Hawthorn
Strickland Crescent	<i>Quercus palustris</i>	Pin Oak
Strzelecki Crescent	<i>Fraxinus oxycarpa</i>	Desert Ash
Strzelecki Place	<i>Sorbus domestica</i>	Service Tree
Stuart Street	<i>Quercus palustris</i>	Pin Oak
Sturt Avenue	<i>Platanus orientalis</i>	Oriental Plane
Sundew Crescent	<i>Ulmus parvifolia</i>	Chinese Elm
Suttor Street	<i>Quercus lusitanica</i>	Spanish Oak
Swainsona Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Swinden Street	<i>Eucalyptus macarthurii</i>	Camden Woolly Butt
Sydney Avenue	<i>Cupressus sempervirens</i> var. <i>stricta</i>	Roman Cypress
Syme Crescent	<i>Eucalyptus cinerea</i>	Argyle Apple

STREET.	BOTANICAL NAME.	COMMON NAME.
T		
Talbot Street	<i>Crataegus acerifolia</i>	Hawthorn
Tallara Parkway	<i>Eucalyptus pauciflora</i>	Snow Gum
Tasmania Circle	<i>Brachychiton populneus</i>	Kurrajong
Tate Street	<i>Quercus palustris</i>	Pin Oak
Teloepa Park	<i>Cedrus atlantica</i>	Atlas Cedar
	<i>Cedrus deodara</i>	Deodar Cedar
Tench Street	<i>Robinia pseudoacacia</i>	Black Locust
	<i>Libocedrus decurrens</i>	Incense Cedar
Tennyson Crescent	<i>Eucalyptus microcarpa, micrantha, Crataegus</i> "mexicana seedling"	Hawthorn
Tenth Street	<i>Prunus nigra</i>	Cherry Plum
Third Street	<i>Prunus nigra</i>	Cherry Plum
Thirteenth Street	<i>Prunus nigra</i>	Cherry Plum
Throsby Crescent	<i>Quercus lusitanica</i>	Lusitanian Oak
Todd Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Toms Crescent	<i>Cupressus sempervirens</i> var. <i>stricta</i>	Roman Cypress
	<i>Prunus blireana</i>	Cherry Plum
Toolambi Street	<i>Quercus cerris</i>	Turkey Oak
Tooma Place	<i>Crataegus crus-galli</i>	Cockspur Thorn
Torrens Street	<i>Quercus palustris</i>	Pin Oak
Torres Street	<i>Quercus ilex</i>	Holm Oak
Towns Crescent	<i>Fraxinus "raywoodii"</i>	Claret Ash
Treloar Crescent	<i>Eucalyptus bicostata</i>	Eurabbie
Truscott Street	<i>Liriodendron tulipifera</i>	Tulip Tree
Turner Place	<i>Sophora japonica</i>	Japanese Pagoda Tree
Turrana Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Twelfth Street	<i>Prunus nigra</i>	Cherry Plum
Twentieth Street	<i>Acer negundo</i>	Box Elder
Twenty-first Street	<i>Acer negundo</i>	Box Elder
Tyson Street	<i>Celtis australis</i>	Nettle Tree
	<i>Eucalyptus polyanthemus</i>	Red Box
U		
University Avenue	<i>Populus alba</i>	White Poplar
	<i>Cedrus atlantica</i>	Atlas Cedar
	<i>Prunus sp.</i>	Plum
	<i>Quercus sp.</i>	Oak
V		
Vancouver Street	<i>Quercus ilex</i>	Holm Oak
Vasey Crescent	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Vaughan Gardens	<i>Juglans nigra</i>	Black Walnut
Verdon Street	<i>Acer negundo</i>	Box Elder
W		
Wakefield Avenue	<i>Quercus cerris</i>	Turkey Oak
Wakefield Gardens	<i>Fraxinus "raywoodii"</i>	Claret Ash
Walker Crescent	<i>Crataegus acerifolia</i>	Hawthorn
Waller Crescent	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Waller Place	<i>Malus sp.</i>	Crab Apple
Walpole Crescent	Mixed <i>Quercus, Ulmus, Populus</i>	Oak, Elm, Poplar
Wandoo Street	<i>Fraxinus pennsylvanica</i>	Red Ash
Waratah Street	<i>Quercus bicolor</i>	Swamp Oak
Warburton Street	<i>Sorbus domestica</i>	Service Tree
Warramoo Crescent	<i>Quercus palustris</i>	Pin Oak
Watson Street	<i>Quercus lusitanica</i>	Lusitanian Oak

STREET.	BOTANICAL NAME.	COMMON NAME.
Watt Street	<i>Ginkgo biloba</i>	Maidenhair Tree
Wattle Place	<i>Quercus "hodgkinsonii"</i>	
Wattle Street	<i>Quercus "hodgkinsonii"</i>	
Way Street	<i>Crataegus "mexicana seedling"</i>	Hawthorn
Wedge Crescent	<i>Sophora japonica</i>	Japanese Pagoda Tree
Weld Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Wells Garden	<i>Ulmus parvifolia</i>	Chinese Elm
Wentworth Avenue	<i>Populus bolleana</i>	Upright Silver Poplar
	<i>Prunus cerasifera</i>	Cherry Plum
	<i>Cupressus sempervirens</i> var. <i>stricta</i>	Roman Cypress
Westgarth Street	<i>Quercus mirbeckii</i>	Algerian Oak
Weston Street	<i>Quercus pedunculata</i>	English Oak
White Crescent	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Whyalla Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Wickham Crescent	<i>Brachychiton populneum</i>	Kurrajong
Wild Street	<i>Ulmus parvifolia</i>	Chinese Elm
Wilga Place	<i>Crataegus oxyacantha</i> var. <i>rosea</i>	Hawthorn
Wills Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Wilmot Crescent	<i>Eucalyptus microcarpa</i>	Grey Box
Wiltshire Street	<i>Quercus mirbeckii</i>	Algerian Oak
Wiluna Street	<i>Fraxinus oxycarpa</i>	Desert Ash
Wise Street	<i>Crataegus oxyacantha</i> var. <i>rosea</i>	Hawthorn
Wonga Street	<i>Liquidambar styraciflua</i>	Sweet Gum
Wongoola Close	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Woolls Street	<i>Fraxinus "raywoodii"</i>	Claret Ash
Wylie Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Y		
Yallourn Street	<i>Eucalyptus maculosa</i>	Red Spotted Gum
Yamba Place	<i>Crataegus crus-galli</i>	Cockspur Thorn
Yapunya Street	<i>Prunus yedoensis</i>	Yoshino-Zakura
Yarrow Place	<i>Malus</i> sp.	Crab Apple
Young Street	<i>Populus monilifera</i> var. <i>aurea</i>	Golden Poplar

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Cedrus Deodara (Deodar). This specimen at Government House, Yarralumla, is one of the oldest planted trees in Canberra. It is well over 100 years old.





